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Real or Phantom Motor Transport Regulation?

That some regulation of interstate commercial motor transportation is needed is now almost unanimously conceded. Even the trucking interests which heretofore have opposed such regulation have suddenly become converted—at least to the extent of favoring regulation under an NRA code. The only important question that remains to be decided, therefore, would appear to be whether regulation under the NRA will be adequate for a business which needed regulation before the NRA was even proposed—and which actually was successfully regulated in several states—and which will continue to need regulation long after the emergency which gave rise to the NRA disappears, taking the NRA—or at least its compulsory features—with it.

The more the NRA method of regulation is favored by trucking interests which have hitherto opposed any regulation at all, the more it is evident that they have taken their present position as a defensive measure against the Rayburn bill now before Congress, which would put interstate commercial motor transportation under permanent regulation by the Interstate Commerce Commission. If they can forestall regulation by the Interstate Commerce Commission by accepting regulation under the NRA, then in a year or two the NRA will probably be greatly relaxed or disappear altogether, and once again interstate truck traffic will be as free and easy as it is today.

NRA an Emergency Expedient

There is a fundamental difference in the character of and justification for the regulation exercised by public utilities and railroad commissions and that provided under NRA codes. The codes are designed primarily to aid industries to protect themselves and their employees from conditions arising from the depression. The legislation under which they are enforced is temporary and the permanence of such regulation may well be doubted. NRA codes, therefore, cannot be looked upon as satisfactory control for those industries which, because they use public property or are monopolistic by nature, are "affected with a public interest" and thus need regulation, depression or no depression.

If it had not been for the anti-trust laws which have long prevented industries from organizing for their own protection; and if it were not for our federal form of government which militates against uniformity in standards of labor—then probably the conditions of cut-throat competition and wage "chiseling" would never have become so serious in most industries as they did, and the NRA method of correcting them would never have been resorted to for industries not clearly "affected with a public interest." In these latter industries, however,—water, power, and transportation—unregulated competition is always of the "cut-throat" variety by the very nature of the business. Evanescent control, certain to be modified greatly and with no statutory stability as to details, is not a satisfactory substitute for regulation of the kind exercised by established commissions over industries "affected with a public interest."

The Truck Leader's View of Motorists' Rights

The rates and service of the railroads are admittedly affected with such an interest, yet railroads operate on private rights-of-way. To an even greater degree, then, the public interest requires regulation of a form of transportation conducted on the public highways. This consideration is particularly important to motorists and other non-commercial users of the highways in view of the cavalier attitude taken by Ted V. Rodgers, president of the American Trucking Associations, Inc., which is the spokesman for the truck interests under the NRA code, toward these unorganized and inarticulate highway users. In an address at Harrisburg, Pa., last October, Mr. Rodgers said:

> It is true that some times trucks incommode the passenger car driver. But the roads were made primarily for business, and the truck is business. They were not intended primarily as joyways, as some people seem to think.

All other considerations aside, is it likely that non-commercial users of the highways can expect much consideration of their rights on the highway if trucks are regulated, not by the Interstate Commerce Commission and the state commissions, but by Mr. Rodgers' organization, practicing "self-government" under an NRA code?

Students of transportation and economics are prac-

tically unanimous in the opinion that the public interest requires regulation of bus and truck traffic, not identical with, but similar to, that now exercised over the railroads by the Interstate Commerce Commission and the state commissions. This necessity arises from the fact that competition in transportation, unlike that of most other industries, cannot be other than of the cut-throat variety if it is unregulated, whether times are good or bad. There is always room on either a truck or a train where a few more pounds of freight can be placed without appreciable increase in cost to the transportation agency which is operating the train or truck. Under uncontrolled competition all rates will tend to be made on the basis of the slight added cost of these few extra pounds rather than on a pro rata share of the cost of the whole train load or truck load, and the process is manifestly ruinous, not only to the transportation agencies but to their patrons who need stable and known rates in order to manage their affairs intelligently with a minimum of uncertainty as to costs.

Why Unified Regulation Is Necessary

Since railroads and truck lines are not separate industries, but simply branches of the same industry, and since they are in competition with each other, it is obvious that their competition cannot be reasonably controlled if it is entrusted to separate regulatory bodies with no relation to each other. Joseph B. Eastman, federal co-ordinator of transportation, has clearly pointed out the weakness of such divided regulation, which he says would tend to make each regulatory authority the partisan of its own form of transportation. Both truck and bus operators have been clamoring for action by the Interstate Commerce Commission or some other governmental agency to prevent the railroads from making "unremunerative" rates to compete with highway carriers. If the Interstate Commerce Commission had authority over motor transport rates and practices and could prevent highway carriers from competing unfairly with the railways, then it would be quite proper to give heed to such complaints. Manifestly, however, it is unfair to ask the Interstate Commerce Commission to restrain the railways in favor of the motor carriers unless the railways can seek similar protection from the motor operators. If the motor lines desire restraint for railway competition, they ought to be willing to submit to similar restriction.

The Rayburn bill gives effect to the stand taken by President Roosevelt in the 1932 campaign favoring regulation of interstate truck transportation by the same agency, namely, the Interstate Commerce Commission, which regulates the railroads. The bill, which is known officially as H. R. 6836, takes its name from the chairman of the House Committee on Interstate Commerce who introduced it. This bill is the product of long study and preparation by experts in regulation—the National Association of Railroad and Public Utilities Commissioners. It has been endorsed by the Interstate Commerce Commission, except for some minor recommendations which would strengthen it rather than detract from it. Its provisions are in harmony with recommendations for transportation legislation approved by a huge majority of replies to a questionnaire sent out by the Chamber of Commerce of the United States to organizations of business men throughout the nation. The bus operators' organization has approved the proposed legislation as far as bus transportation is affected, but would prefer to be dealt with alone rather than jointly with truck transportation. An organization of responsible truck operators, the National Highway Freight Association, likewise favors the legislation. Finally, it must be remembered that this is not hasty legislation drawn up to meet a problem of recent development, but is a considered measure, the product of full and free discussion and is based on successful legislation of similar character already in operation in several of the states.

Further Delay Unwarranted

Some proposals which may be made for improving transportation conditions may need further discussion, but this is not one of them. The provisions of this bill are not essentially different from those upon which experts on the subject would have readily agreed upon a year or more ago. They are not, it is safe to assume, different in any important particular from those which another year of discussion would produce. In other words, whether or not there may be any possibility of considering comprehensive transportation legislation at the present session of Congress, there exists no reason for delaying affirmative action on this particular measure.

Opponents of the bill are relatively few in number, but we do not underestimate their power. Apparently most of them could be classified into three categories—the truck manufacturers and their allies, a scattering of shippers who feel that unfettered competition in transportation is to their advantage, and the aforementioned American Trucking Associations, Inc. The interest of the manufacturers in selling as many vehicles as possible is sufficient reason to explain their desire to oppose any restraint on truck operation insofar as they can. The attitude of some short-sighted shippers is also not difficult to comprehend. And, as for the truck organization under the proposed NRA code which appears to be the bellwether of the opposition, its preference for NRA regulation rather than that by the Interstate Commerce Commission would be understandable if for no other reason than that the latter would deprive the organization of its function and, presumably, its officers of their jobs. These, speaking generally, are the principal forces opposing the Rayburn bill. As striking as is the array of friends of the bill and the public spirited disinterestedness which motivates many of them, nevertheless it would appear that the nature of the opposition to the measure testifies also with some eloquence in its favor.

Recognizing Political Realities

Some pointed observations have recently been made from a source of unimpeachable intellectual integrity upon the propriety of industries and their employees defending their interests politically and before public opinion. In an essay, Economics vs. Politics, appearing in a book entitled The Economics of the Recovery Program, written by seven members of the Harvard economics faculty, Professor Overton H. Taylor says:

> In spite of the large extent to which effective government may restrain and civilize the struggle, the entire political process is essentially a struggle of economic groups and classes, sections, industries, etc., catered to by struggling parties, to gain and use political power and get the greatest relative advantage by a suitable reshaping of all available and serviceable economic policies of the state. . . . It is folly to blame any man or body of men in public life for doing in office—or in getting and holding office—the things that have to be done in order to survive in politics because in that game everybody does them against everybody else—because they are the existing rules of the game. . . .
>
> Moreover, even more important than full recognition by their critics of the hard realities that men in high and low public office in the nation have to face, in the shape of the moves on the part of their political rivals which have to be met or anticipated in kind, is an equally full recognition of the corresponding fact about the positions of the great economic groups or interests in the nation, whose support these men require.
>
> No one great group of this kind—the farmers, labor, the business class, the bankers, Wall Street, tariff beneficiaries, creditors, debtors, tax payers, tax eaters or any other group with a common interest in one side of any possible political issue—*can afford not* to exercise upon the government, through its votes and its lobbies and all the weapons it can use, enough political pressure and unscrupulous cunning to bend the policies of the government in its favor if it can, to an extent at least sufficient to make up for its losses in this game to other groups.
>
> The penalty of failure or inability to exert enough pressure to offset, on the average over the long run, the opposing pressures of other groups gaining governmental favors partly at the expense of the given group is slow or rapid decline into poverty under the influence of governmental policies insidiously operating to alter the distribution of wealth in favor of successful groups.

Professor Taylor's words are brutal, but they do not depart essentially from the facts. We can join him in the hope that gradually the "rules of the game" may be improved, but meantime we must face the evident truth that the railways and kindred interests and their employees have failed to defend themselves sufficiently to prevent other groups from gaining governmental favor at their expense.

The political activity and the propaganda by selfishly interested groups in behalf of huge subsidies to highway transport and the wasteful development of the inland waterways afford the one and only satisfactory explanation for such violation of sound economics—coupled, of course, with the corollary that the effort made in behalf of these expenditures has not been adequately matched by counter effort by the railroads, the taxpayers, the fiduciary institutions and others who are injured by them.

Measured entirely by results, it is clear that the railways and their natural allies need to devote more attention than they ever have to public relations work—not to gain any unnatural advantage, but simply to secure a modicum of justice for themselves. By comparison with the huge propaganda machines of their competitors their present efforts appear rather meager. However, it is not by the mere expenditure of money that public relations are improved, and the railroads have thus far made the little they have spent go a long way by reason of the intelligence and the straightforwardness which, generally speaking, have characterized their efforts.

Nevertheless it is evident that more money ought to be spent and more intelligence applied to the task of enlisting everyone with an interest at stake in an effort to put an end to the government policies which are uneconomically diverting traffic from the railways. Certainly as long as these policies continue the railroads cannot be said to have succeeded in defending themselves to the extent necessary to safeguard, not only their interest, but that also of a sound and balanced national economy.

Track Maintenance

While the curtailment of the expenditures for track maintenance during the last four years was reflected in a drastic reduction in employment, this was by no means the only change that has occurred in the track forces. Whereas the depression had served as a damper on much of the development that was in progress during the late twenties, it served to promote rather than to retard the application of new ideas in organization. As a result, many changes have taken place. The sections assigned to individual track gangs have been lengthened, there has been an increasing tendency to assign to larger gangs a considerable part of the work that had hitherto been deemed to be solely the province of the section gang; in certain instances a single floating gang has entirely replaced the section gangs on branch lines, and two roads have created a new position, that of an inspector-supervisor, who has taken over certain duties previously falling on either the section foreman or the roadmaster.

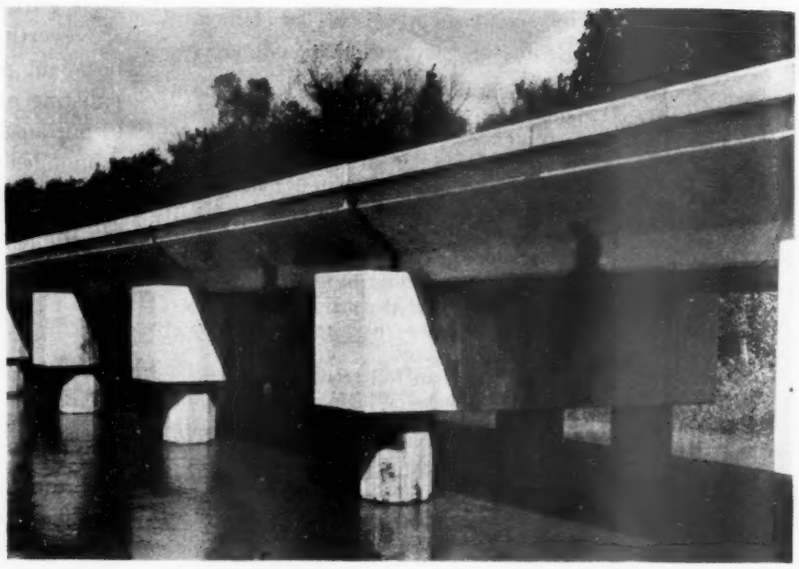
While some of these changes in organization had their inception in the urgent necessities of the depression and all are being carried out on what might be termed a depression basis, it is doubtful if any of them were introduced with the thought that they were temporary expedients. On the other hand, very few of them have had a thorough trial under normal conditions.

Because the railways are now preparing programs for increased expenditures on their tracks, that will call not only for larger forces but no doubt, also, for some increase in the supervisory staff, the question of organization has taken on a new aspect. Just how will the current organizations be modified to meet the expanded needs? Many maintenance officers are of the opinion that the depression has taught lessons in the field of gang organization that will be just as applicable to periods of normal activity.

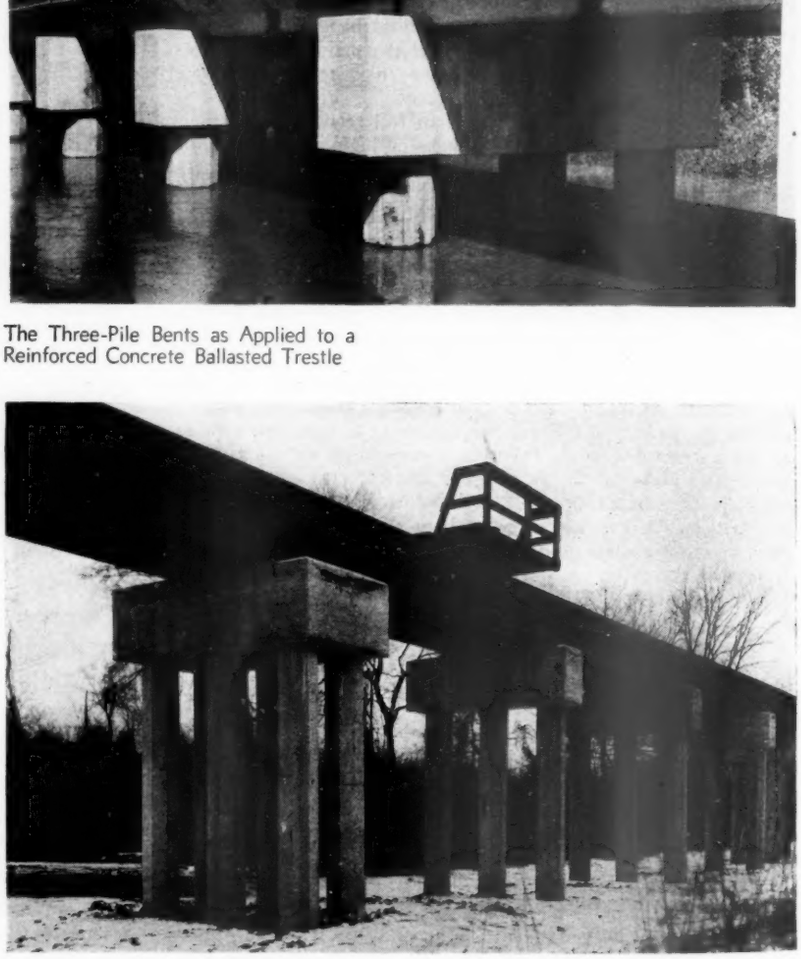
Use Three-Pile Concrete Bents in Railway Trestles

Careful loading tests and experience in construction demonstrate the economy, capacity and practicability of 24-in. piles in railway structures of various types

By F. E. Bates



The Three-Pile Bents as Applied to a Reinforced Concrete Ballasted Trestle



Three-Pile Bents Supporting Steel Beam Spans—The Double or Anchor Bents are Installed at Intervals of 189 ft.

SINCE July, 1932, the Missouri Pacific has built a number of trestle bridges embodying the use of reinforced concrete pile bents which differ from those built heretofore for railroad loading in that there are only three piles to the bent instead of five or six. While these piles are of larger section than those used in the five or six-pile bents, having an octagonal section 24 in. on the short diameter, greater economy in driving, due in no small part to the fact that disturbance of the chords of an existing open-deck trestle is entirely avoided, has been responsible for an appreciable reduction in the cost per bent, compared with that for bents containing a larger number of smaller piles. This reduction in cost, in the opinion of the writer, has greatly increased the availability of the reinforced concrete pile bent as a substructure unit in railway bridges.

The concrete pile for railroad trestle bridge construction was first developed as a substitute for the timber pile, and the size and number per bent closely followed timber bridge practice. The driving equipment in most cases was the same as that used in driving timber piles. Standard construction consisted of bents of five or six piles each, supporting reinforced concrete track slabs from 14 to 16 ft. long. The load per pile ranged from 25 to 35 tons.

For trestles built on new lines or in locations where traffic can be temporarily diverted, the driving of five or more piles per bent involved no construction difficulties, but in the replacement of existing trestle bridges which must be maintained safe for traffic, two of the piles of a five-pile bent and four of the piles of a six-pile bent cannot be driven without removing or shifting the stringer chords of the existing track deck, which chords must be restored to position each time that a train is to cross the bridge. A time study made during the driving of a trestle with six 16-in. piles per bent, in a single-track main line where it was necessary to clear for from four to eight trains during the working hours, indicated that practically one-half of the available working time was spent in shifting and restoring the track deck before and after driving and that the actual time spent in driving did not exceed two to three hours per day. Also, the shifting of the deck of the old structure incidental to the pile-driving work reduces its stiffness and increases maintenance costs while the construction work is in progress.

No Interference With Three-Pile Bents

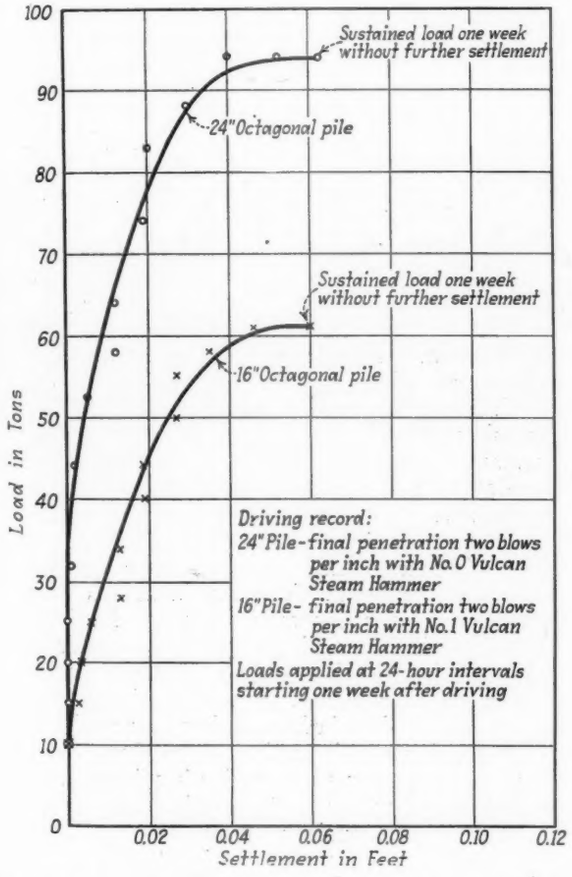
The three-pile bent was developed to eliminate the delays incidental to the shifting of the track deck of the old structure and to reduce field operations to a minimum. With only three piles to the bent, one pile is driven between the two timber chords and one immediately outside of each chord. No preparatory work is required

other than the removal of three ties in advance of pile driving. To maintain the stiffness and load-carrying capacity with only three piles per bent, the size of the piles was increased from 16 in. to 24 in. The following table shows the properties of each:

Properties of 16-Inch and 24-Inch Concrete Piles

Item	16-In. Octagonal Pile	24-In. Octagonal Pile	Ratio of 24-In. to 16-In. Pile, Per Cent
Diameter of reinforcing cage	13 in.	21 in.	173
Sectional area	202 sq. in.	452 sq. in.	225
Surface area, per foot of length	4.62 sq. ft.	6.93 sq. ft.	150
Weight per foot of length	210 lb.	470 lb.	224
Ratio of strength in bending	100	282	282
Ratio of stiffness	27.5	194.5	705
Load-carrying capacity for equal settlements, as determined by field tests	20 tons	47 tons	235
	30 tons	60 tons	200
	44 tons	78 tons	180
Cost to manufacture	$0.80 per ft.	$1.05 per ft.	128
Cost to drive	$0.75 per ft.	$0.60 per ft.	80
Cost in place	$1.55 per ft.	$1.65 per ft.	113

Pile-driving formulas to determine the carrying capacity from the penetration per blow have not been developed for concrete piles, particularly for the larger sizes, and to determine the relationship of the carrying capacity of the 16-in. and the 24-in. piles, one pile of each size was driven to a depth of 18 ft. in sandy clay for test purposes. To avoid excessive test loads, driving was stopped when the penetration amounted to approximately one-half inch per blow. Test loads were then applied at 24-hour intervals, using increments of 3 tons for the 16-in. pile and 6 tons for the 24-in. pile. The accompanying graph shows the settlement under test loads and the comparative carrying capacity of the two piles for equal settlements. It will be noted that for settlements of 0 to 0.01 ft., the larger pile has a carrying capacity of from two to three times that of the small pile; also, that after an appreciable settlement has occurred, the relative carrying capacities vary directly with the perimeter or surface area of the piles. Further tests of the 24-in. pile driven to a resistance of 10 to 12 blows per inch and loaded by means of an hydraulic jack produced a permanent settlement of $\frac{1}{40}$ in. under a 100-ton load and $\frac{3}{16}$ in. under a 180-ton load.



Graph of the Loading Tests, That Demonstrates the Relative Capacities of the 16-in. and 24-in. Concrete Piles

A Pier of Six 24-In. Piles Supporting the Ends of a 30-Ft. and a 55-Ft. Girder Span

How the Tests Were Made

Tests of piles are made during the driving of a bridge by placing a heavy timber cap across the center pile in a bent before the concrete cap is formed, raising the timber stringers to clear the adjacent bents and centering the front truck of the locomotive crane over the test pile. By fastening the load line of the crane to a driven pile and taking a strain on the line it is possible to place the full weight of the crane, amounting to 105 to 110 tons, on the test pile. Instructions require the foreman to drive piles to a minimum resistance of 10 blows per inch of penetration, using a steam hammer with a 9000-lb. ram and a 4-ft. stroke. Piles driven to this resistance have sustained the test load for 30 min. with a maximum permanent settlement after the load is released of $\frac{1}{8}$ in. The following table gives the comparison between the 16-in. and the 24-in. pile bents:

Items	Pile Bent Six 16-In. Piles	Pile Bent Three 24-In. Piles	Ratio of 24-In. to 16-In. Pile Bents, Per Cent
Load per bent	180 tons	180 tons	100
Load per pile	30 tons	60 tons	...
Stiffness	165	583	352
Bending strength ratio	600	846	141
Cost of one bent, including the cap, based on piles 30 ft. long	$353	$227	64

It is evident from the above comparison that a bent with three 24-in. piles is superior to one with six 16-in. piles in stiffness and strength, and the cost is approximately one third less.

The 24-in. pile is reinforced to permit its handling in the field with a single sling located five feet from the

head and to resist the bending moment produced by a horizontal load applied at the top of the cap equal to one third of ten per cent of the bent reaction for Coopers E-60 loading, with a lever arm equal to the length of the pile, less 20 ft. Four of the longitudinal bars are full length and additional short bars as may be necessary are placed in the central section to give the pile the requisite strength.

Methods Used in Driving

The driving of the 24-in. pile cannot be handled with the locomotive pile driver with fixed leads, owing to the weight of the pile and hammer. In lieu of the guiding effect of leads, a hole four to six feet deep is bored with an earth auger and after the pile is set in the hole it is held in position by a heavy timber frame or guide. The hammer is provided with a cast steel follower block or bonnet which fits the pile snugly and is suspended on the hammer line of the locomotive crane without leads. If sufficient care is taken to plumb the pile before the driving is started and the hammer is kept vertical, there is little difficulty in driving the pile. The driving cushion used consists of a gum or oak block four to six inches thick and the full size of the pile. One block will drive from two to four piles, depending on driving conditions. A noticeable difference in penetration per blow is experienced with a fresh block and one that has been used to drive one or more piles, owing to the additional cushioning effect of the wood before it has been compressed.

The driving of 24-in. piles was begun in July, 1932, and to date approximately 1,200 have been driven. The program for this year calls for the driving of 1,200 piles ranging from 25 to 60 ft. in length.

The types of structures in which these 24-in. piles have been used are:

A—Concrete ballasted-deck trestles with 16 and 18-ft. panels.

B—Open-deck steel-beam spans on concrete pile bents with panel lengths of 20 to 27 ft.

C—Timber and concrete ballasted decks on steel-beam spans on concrete pile bents with panel lengths 20 to 27 ft.

D—Concrete pile piers and shallow abutments for girder spans 40 to 55 ft. long.

Construction work has been handled by two system bridge gangs, one equipped with a 30-ton, and the other with a 50-ton locomotive crane. Both cranes are equipped with oversize boilers and two-speed travel mechanisms and are capable of traveling at a speed of 20 m.p.h. With machines so equipped, a work engine is unnecessary; the crane does all switching of materials from the nearest siding. While moving on operated tracks a conductor and a brakeman are required for protection. Each gang is equipped with a small mixing plant on a car, which eliminates a plant set-up at each bridge and permits the charging of the material hoppers by the crane while on a siding to clear trains. This provides accurate control of concrete mixing and avoids the cost of a stationary plant, which could not be justified for the small yardage involved in the caps and backwalls. Each gang is provided with an air compressor and an oxy-acetylene torch for cutting off piles, and with steel pile clamps and sectional forms for the construction of the caps.

The hammers used for driving are:

For piles 20 to 40 ft. long—A No. 0 Vulcan steam hammer with a 7500-lb. ram and a stroke of 4 ft.

For piles 40 to 60 ft. long—A special Vulcan steam hammer with a 9000-lb. ram and a stroke of 4 ft.

The pile lengths are determined by timber test piles driven with a No. 2 Vulcan hammer and no difficulty is experienced in securing equal or greater penetration with the concrete piles.

Piles Cast at a Central Plant

The concrete piles and slabs are cast at a central plant at Little Rock, Ark., and a stock of piles of various lengths is carried to permit piles of correct lengths to be furnished. The cost of piles constructed during 1933 is as follows:

Cost of Concrete Piles per Foot

	Lengths of Piles						
	20 ft.	25 ft.	30 ft.	35 ft.	40 ft.	45 ft.	50 ft.
Reinforcing bars and spirals	$0.16	$0.18	$0.22	$0.28	$0.42	$0.44	$0.57
Concrete materials	.55	.57	.58	.59	.60	.60	.60
Labor	.21	.21	.21	.21	.21	.21	.21
Miscellaneous	.03	.03	.03	.03	.03	.03	.03
Total	$0.95	$0.99	$1.04	$1.11	$1.26	$1.28	$1.41

Construction costs vary with the type of structure, the magnitude of the individual job and local conditions. For structures 300 to 1,000 ft. long, the costs per foot vary from $35 for an open deck bridge to $55 for a concrete ballasted deck trestle. The costs include labor, material, rental of equipment, work-train crews, transportation and maintenance, and removal of the old structure.

I. C. C. Approves Rayburn Bus and Truck Bill

WASHINGTON, D. C.

COMMISSIONER Frank McManamy, as chairman of the legislative committee of the Interstate Commerce Commission, has sent to Chairman Rayburn of the House committee on interstate and foreign commerce a report on the Rayburn bill, H.R. 6836, providing for a system of regulation of interstate highway transportation, stating that with certain minor suggestions the commission recommends approval of the bil and that its provisions "seem to be well designed to accomplish the proposed regulation."

Two weeks of hearings on the bill were brought to a close on February 2, after Chairman Rayburn had greatly hurried up the oral presentation of testimony of many of the witnesses by requesting them to file the remainder of their statements for the record. He does not plan to have the committee take up active consideration of the bill until after the receipt of Co-ordinator Eastman's forthcoming report as to the need for federal legislation to regulate transportation agencies that are competing with railroads, and it is understood that the committee's action then will be guided largely by the President's attitude after he has received Eastman's recommendations, together with the comments on them of the Interstate Commerce Commission. The President has heretofore indicated that, while generally desirous of bringing the regulation of all forms of transportation under a single agency, probably the Interstate Commerce Commission with enlarged jurisdiction, he was awaiting Eastman's report on the subject before taking any position as to urging legislation at this session. The House committee has in the past conducted extensive hearings on bills for the regulation of motor transportation only to find the Senate unwilling to consider the matter.

Many of the provisions of the bill "are grounded on experience in the regulation of railroads," the commis-

(*Continued on page 224*)

Effect of Sulphur on Aluminum Cars

Ten 70-ton cars in the service of the Alcoa Ore Company for two years indicate ability to resist corrosion

THE transportation of sulphur, or of materials with a sulphur content, has always been a cause of grave concern to the railroads, because of the fact that sulphur so readily attacks side and slope sheets of hopper cars.

Ten 70-ton hopper cars, with bodies of aluminum, were placed in service by the Alcoa Ore Company two years ago.* It was the first time that aluminum had been suggested for hopper-car construction. Theoretically, its use was sound, but actual service tests had not been made and both railroad officers and car builders were awaiting the results of these tests with interest to see whether aluminum would be strong enough to withstand the heavy loads it was expected to support.

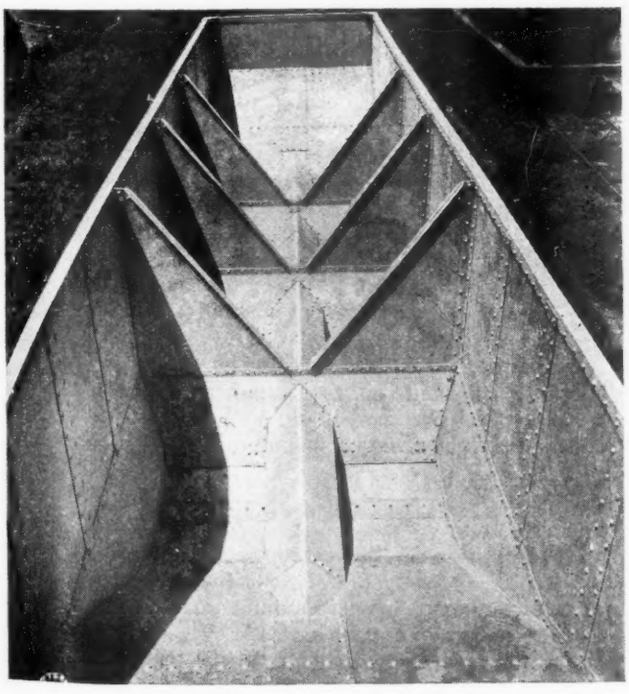
The ten cars were used for transporting bauxite from the Alcoa Ore Company's mines in Arkansas to East St. Louis. About the same time the Missouri Pacific decided to test an aluminum hopper car in the sulphur service, in order to see how the new metal would withstand the attacks of sulphur.

A car identical in type with the other ten was leased to the Gulf Coast Lines and was used to take sulphur from deposits located at Bryan's Mound and Hoskin's Mound to Freeport, Tex.

A report on the car was made every month, which included the number of loads carried during that period, the nature of the repairs required, and details concerning the deterioration, if any, noticeable on the side and slope sheets of the car.

The only repair made consisted in replacing a hopper chain, not of aluminum, which broke early in service. Since then the car has made 116 trips fully loaded with sulphur and has traveled thus loaded a distance of 2,540 miles.

* These cars were described in the March 26, 1932, issue of the *Railway Age*.



The Interior of the Aluminum Hopper Car after Two Years Service in Handling Sulphur. No Repairs Were Made on this Car during that Period

Five of the Ten 70-ton Aluminum Hopper Cars in Alcoa-Ore Company Service

It was noted that the slope sheets, instead of corroding and forming a scale which would retard dumping operations, remained bright and shiny, and the contents could be dumped faster than if the car had been made of ordinary materials.

This discovery was quite remarkable, particularly since corrosion conditions are usually so severe. Cases are on record where hopper cars, loaded with coal (which contains sulphur up to 4 per cent), have stood in railroad yards near Lake Superior from autumn to spring. The corrosion resulting from sulphur attacks was so pronounced that the bottoms of the cars dropped out, along with the coal, after the latter had been stored in the hoppers only for a few months.

The theory that sulphur had no effect on aluminum was accordingly tested by placing the aluminum hopper car in service. It was also reasonable to assume that if aluminum could withstand the direct attacks of sulphur, then it should certainly be an ideal material for cars carrying such sulphur-bearing material as coal.

In order to test this assumption scientists of Aluminum Research Laboratories, New Kensington, Pa., placed three aluminum hoppers outside the laboratories, filled them with coal, and left them there for two years.

The coal used in the experiment was bought especially for its high sulphur content. The hoppers were built of the same alloy used in the construction of the car for the sulphur trade. After two years no noticeable de-

preciation in the aluminum could be found. The thickness of the aluminum sheet was the same as that of the steel ordinarily used.

Steel sheets for sulphur-carrying hopper cars, incidentally, are made to special thickness in order to combat corrosion as much as possible. The aluminum sheets used in hopper cars now under construction are 1/16 in. thinner because the additional thickness was not necessary.

While the tests on this new type of carrier were made by the Missouri Pacific, several other Class I railroads placed test cars in operation. Results so far obtained support the service experience of the aluminum hopper cars on the Gulf Coast Lines.

The car has a length over striking castings of 41 ft. 11 in., an inside length of 39 ft. 11 7/8 in., an inside width of 9 ft. 6 in., and a height of 10 ft. 6 in. from rail to top of body. As constructed by the Canton Car Company, Canton, Ohio, the car weighs 38,900 lb. Similar cars built for the Alcoa Ore Company to the same general dimensions, but utilizing heavier materials, weigh 60,000 lb., or 21,200 lb. more than the aluminized unit.

Some Calculations on St. Lawrence "Savings"

WASHINGTON, D. C.

SOME of the amusing calculations being used by advocates of the St. Lawrence waterway treaty in connection with the debate going on in the Senate have been analyzed in a letter to Senator Reed, of Pennsylvania, from the Port of Philadelphia Ocean Traffic Bureau, which the Senator inserted in the Congressional Record on February 5. The letter, signed by R. H. Horton, manager of the bureau, takes exception to some of the statements in a report of the Interdepartmental Board on the Great Lakes-St. Lawrence Project, which was transmitted to the Senate on January 10 by President Roosevelt with his message urging ratification of the treaty, as follows:

On page 3 there is a statement that in the present St. Lawrence Canal the rate of growth of the traffic is "approximately 16 per cent per annum."

In all normal uses of this phrase it would be assumed that it meant a growth each year of 16 per cent of the former year's traffic. If this were the case, the traffic would have increased from 2,000,000 tons in 1908 to 38,921,000 tons in 1928. The actual increase was to 8,400,000 tons in 1928, which is at the rate of 7.44 per cent per annum.

On page 8, in the sixth paragraph, there is estimated a potential traffic in foreign trade of 13,483,833 tons, which would be carried at a gross saving of $78,893,130. This is a saving at the rate of about 29 cents per 100 pounds.

At the present time there is a system of lake and rail rates in effect which generally bring the traffic down the Lakes in boats as far as Buffalo, where it is transshipped into cars and carried to seaboard. Most of the traffic which it is assumed would travel by water is of those commodities which take the fifth- or sixth-class rates and the railroad share of these through rates for the service they perform in carrying the goods from Buffalo to the seaboard varies from 18¼ to 23¼ cents per 100 pounds. It is obvious that if 29 cents per 100 pounds is to be saved, the ships which are to carry this traffic to foreign countries must accept from 5¾ to 10¾ cents less to carry these goods from the lake ports to the Atlantic Ocean than they now receive to carry them from the lake ports to Buffalo only. Such an assumption is absurd on its face and the claimed saving is questionable.

On page 8 there are cited typical examples of savings in domestic shipments. The first one cited is $5.44 to $12.64 per ton on lumber from Grays Harbor, Wash., to Detroit, Mich. The present rate for lumber from Grays Harbor, Wash., to north Atlantic ports on vessels traversing the Panama Canal is about $6.80 per ton and the through rate to Detroit, including the rail haul from the seaboard, is $12.60 per ton. How it would be possible to save $12.64 we fail to understand. If $5.44 were saved, it would be assumed that these ships would be willing to travel an additional distance of about 2,000 nautical miles to Detroit for an additional revenue of 36 cents a ton.

The second item cited is the saving of $9.332 per ton on fifth-class commodities from Philadelphia to Chicago. The present rate for fifth-class commodities from Philadelphia to Chicago is $10.20 per ton. If $9.332 is to be saved, it would be necessary that the water rate from Philadelphia to Chicago via the St. Lawrence Seaway and the Great Lakes be $0.868 per ton, which is, as a practical matter, probably insufficient to pay the cost of loading and unloading the material onto and from the ship. At the present time there are motor barges operating from north Atlantic ports via the Hudson River, Erie Canal, and Great Lakes which we have known of offering a rate of $6 per ton. This is probably a faster service than would be supplied by the St. Lawrence Seaway, and we fail to understand how it would be possible to save 50 per cent more than the total rate.

The third item cites a saving of $84.947 per ton on automobiles from Detroit, Mich., to Los Angeles. The present rate on automobiles from Detroit, Mich., to Los Angeles, when carried by rail to the eastern seaboard and then by steamer through the Panama Canal is $70.60 per ton. You will note the saving is cited $14.947 per ton in excess of the total rate.

If the other figures in regard to potential commerce are figured in the same way as these typical examples, we feel the entire report is misleading and open to serious question, particularly that section headed "Co-ordination of Transportation Agencies," which purports to show that any diversion of traffic to the St. Lawrence Seaway "will benefit rather than injure the roads" (meaning railroads).

It would seem particularly pertinent to inquire why the War Department, Department of Commerce, and the Power Authority of the State of New York—which, I understand, make up the interdepartmental board of the Great Lakes-St. Lawrence project—should express an opinion upon the effect of this operation on the railroads or on the co-ordination of transportation agencies when there is available the Federal Co-ordinator of Transportation and the Interstate Commerce Commission, who are well equipped to speak accurately and with authority on the subject.

I. C. C. Approves Rayburn Bill

(*Continued from page 222*)

sion's report said, "as for example, the provisions for filing rates and charges and for strict adherence thereto and the provisions authorizing investigation and suspension of proposed changes in the rates and charges as filed. Without requirements for filing rates and adherence thereto and of jurisdiction over proposed changes, rate regulation would be ineffective. Similarly, in respect of the issuance of certificates of public convenience and necessity, the requirement that such certificates be obtained is fundamental to motor carrier regulation. Likewise other provisions of the bill seem necessary to effective regulation.

"While we regard H. R. 6836 as generally free from the criticisms made of previous bills, there are certain features which we feel should be brought to your attention, and a few changes would in our opinion improve it."

Minor Changes Suggested

The definition of "interstate or foreign commerce" in paragraph (7) of section 1 (a), the report says, would exclude commerce between points in the same state but passing through another state, which is in fact interstate commerce and subject to the interstate commerce act when it moves by rail. "Section 19 (b) provides that such transportation by motor vehicle shall be regarded as intrastate transportation within the state in which the

(*Continued on page 228*)

S. J. Hungerford Heads C. N. R.

Trustees appoint acting president to presidency of Dominion's government system

SAMUEL J. HUNGERFORD, who has been acting president of the Canadian National Railways since the retirement of Sir Henry Thornton as president and chairman in July, 1932, and who has during the intervening period continued to perform the duties of operating vice-president of the properties, has been chosen president of the company by the recently named board of trustees of which Judge Charles P. Fullerton, K.C., is chairman.

Samuel J. Hungerford

Mr. Hungerford was born near Bedford, Que., in 1872 and entered railway service in 1886 as a machinist's apprentice on the Southeastern Railway (now Canadian Pacific) at Farnham, Que. Completing his apprenticeship in 1891, he worked at his trade at various places in Quebec, Ontario and Vermont for the Canadian Pacific. In 1894 he became chargeman for the same company at Windsor street, Montreal. Three years later he was promoted to the post of assistant foreman at Farnham shops. In 1900 he went to Megantic, Que., as locomotive foreman. The following year he was transferred to McAdam Junction, N. B., as general foreman. He then went to British Columbia for two years, being locomotive foreman at Cranbrook.

In 1903-04, he was master mechanic for the Western division of the Canadian Pacific with headquarters at Calgary, Alta., and in the latter year was promoted to the superintendency of the locomotive shops at Winnipeg, Man. From 1908 to 1910 he was superintendent of shops at Winnipeg. In 1910 he resigned from the service of the Canadian Pacific to become superintendent of rolling stock of the Canadian Northern (one of the predecessor companies of the present Canadian National) with headquarters at Winnipeg. In 1915 he was transferred to Toronto, Ont., in the same capacity. Two years later he became general manager of the Eastern lines of the Canadian Northern and in the following year was appointed assistant vice-president of operation, maintenance and construction of the Canadian National, then in process of formation as successor to the Canadian Northern, with the same headquarters. In 1920 he became vice-president of operation, maintenance and construction of the Canadian National and Grand Trunk Pacific. In 1922 he was appointed vice-president and general manager of the two companies and, upon their merger into the present Canadian National System in 1923, he became vice-president of operation and construction of the system with headquarters at Montreal, in which position he remained until he was chosen also as acting president of the system in 1932.

The system which Mr. Hungerford heads, with 23,772 miles of line, serving American as well as Canadian communities, is the largest railway in point of mileage on the North American continent and, with the exception of the German Reichsbahn and the railway system of the Soviet Union, is the largest in the world. Not only is it a large railway; it also presents a serious problem to the taxpayers of Canada who own it and who are liable for the huge sums by which it has been failing to earn interest on its obligations in the hands of the public. At the end of 1932 the consolidated balance sheet of the system showed a corporate deficit of $758,831,000, and interest accrued but unpaid on loans from the Dominion government totaling $388,398,000. For the past three years the system has failed each year by approximately 60 millions to earn interest on its obligations in the hands of the public, to say nothing of any return on the enormous government investment in the property.

Notwithstanding the seriousness of this situation, the management under Mr. Hungerford's leadership has shown itself extremely capable in effecting economies, as is evidenced by the fact that the lines were able to meet their operating expenses in 1933 by substantially the same margin as in 1932 in spite of a decline in operating revenues of approximately 9 per cent under the low level of 1932. The working out of the new legislation, passed by Parliament last year, designed to aid and encourage the Canadian National and its privately-owned competitor, the Canadian Pacific, to reduce competitive expenses, combined with the trend of traffic which now appears to be definitely upward, would appear to offer opportunities to produce much more encouraging statements of net revenues in future than any seen since the onset of the depression.

Canada's railway problem is essentially one arising from expansion in advance of adequate traffic volume, of which expansion the Canadian National as the newer company has more than its share. The Dominion has overstimulated construction and duplication of facilities by the use of public funds and is now faced with the necessity of retracting wherever possible and, by co-operative action, reducing to a minimum the competition which it once stimulated. The situation is not essentially different from that in the United States only that the American governments have used taxpayers' money not for overexpansion of railways but rather to revive archaic barge lines and to parallel existing heavy-duty railways operating at far less than capacity with heavy-

duty highways for the accommodation of large commercial trucks and buses, taking traffic which the railways could easily handle without any appreciable increase in costs. In both countries the result has been similar—the rolling up of a hugh public debt, and an increase in the average unit cost of all transportation by diffusing the task among duplicate facilities.

While expenditures for the duplication of transportation facilities are continuing south of the border at an unprecedented rate, Canada, it would appear, has now begun the return to a sounder transportation policy, which step has probably been facilitated in the Dominion because there the problem of surplus transportation is largely a railroad problem, and experienced transportation men can bring it to a solution in measure as they are permitted to deal with it as such.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading in the week ended January 27 totalled 561,566 cars, an increase of 1,136 cars as compared with the week before and of 86,274 cars as compared with the corresponding week of last year. It was also an increase of 1,223 cars as compared with the corresponding week of 1932. All districts showed increases as compared with last year, as did all commodity classifications, but grain, ore, coal and coke showed reductions as compared with the week before. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

Revenue Freight Car Loading

Week Ended Saturday, January 27, 1934

Districts	1934	1933	1932
Eastern	128,716	108,220	128,111
Allegheny	106,484	88,402	111,441
Pocahontas	41,117	33,554	34,035
Southern	88,148	76,911	86,471
Northwestern	64,719	54,462	64,822
Central Western	84,633	70,664	88,320
Southwestern	47,749	43,079	47,143
Total Western Districts	197,101	168,205	200,285
Total All Roads	561,566	475,292	560,343
Commodities			
Grain and Grain Products	31,694	25,324	32,981
Live Stock	18,520	17,401	21,225
Coal	124,758	97,354	108,161
Coke	7,696	4,460	5,205
Forest Products	20,615	14,439	18,964
Ore	3,192	1,526	2,816
Merchandise L.C.L.	161,840	160,757	187,974
Miscellaneous	193,251	154,031	183,017
January 27	561,566	475,292	560,343
January 20	560,430	499,554	562,101
January 13	555,627	509,893	572,649
January 6	499,939	439,469	571,678
Cumulative Totals, 4 Weeks	2,177,562	1,924,208	2,266,771

Car Loading in Canada

Car loadings in Canada for the week ended January 27 totaled 40,171, or 8,734 more than for the corresponding week last year, according to the Dominion Bureau of Statistics. Principally due to light grain loading, there was a decrease from the previous week of 555 cars, which, however, was less than seasonal and the index number rose from 69.76 to 70.55.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada:		
January 27, 1934	40,171	21,149
January 20, 1934	40,775	20,463
January 13, 1934	41,389	21,015
January 28, 1933	31,437	17,474
Cumulative Totals for Canada:		
January 27, 1934	156,697	81,418
January 28, 1933	123,795	67,480
January 30, 1932	160,621	79,986

A. R. A. Standard Valves Built by Walworth

IN 1932 the American Railway Association, Mechanical Division, adopted specifications for standard globe and angle valves for steam locomotive service for 300 lb. pressure making the recommendations effective August 1, 1933. The purpose of the standard valve is to insure absolute interchangeability of parts regardless of the valve company producing the valve. The illustration shows such a standard valve, as manufactured by the Walworth Company, New York, which is now producing the 1¼-in. size.

Specifications

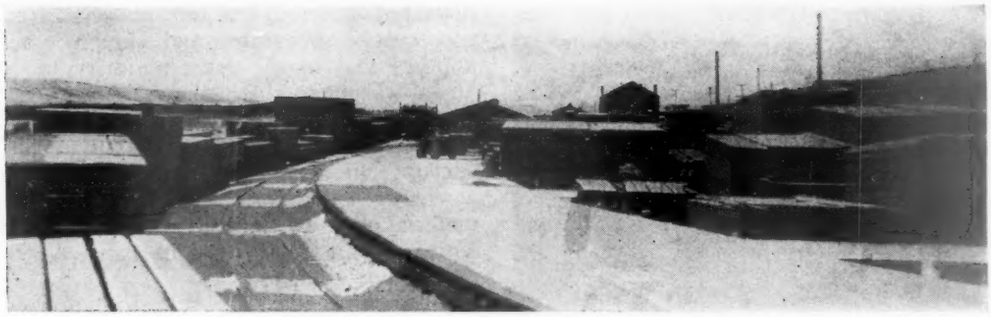
The specifications call for the manufacture of the body of steam bronze; the bonnet, bonnet ring, stuffing nut and disc nut of steam bronze or forged brass; the inside screw type stem of rolled brass rod or forged brass; the outside screw type stem of stainless steel; the seat ring and disc of copper-nickel alloy having a Brinnell

Two Types of A.R.A. Standard Globe Valves Manufactured by the Walworth Co.

hardness of not less than 100; the gland and handwheel nut of free-cutting brass rod or forged brass and the handwheel of malleable iron. The standards adopted include the material specifications, globe and angle valve assembly, dimensions for inside and outside screws, union ends, markings and the details of every part.

The valve body, either globe or angle, fits the inside screw or outside screw yoke bonnet; that is, if it is desired to change a valve in service, from one type to the other it can be done without removing the valve from the line. Likewise, if it is desired to change the discs and seats from the regular type to the plug type, this can be done. The plug type discs are generally used on throttling service.

The principal features of the A. R. A. standard valve are interchangeability due to close tolerances of manufacture, oversized stems and generally rugged construction.



Winter Weather in the Lumber Yard at Great Falls, Mont.

Stores Expense—A Subject for Standardization

Value of measure in determining true costs of material and making comparisons impaired by wide differences in accounting practices—Reform needed

By A. J. Munn

District Storekeeper, Great Northern, Superior, Wis.

OF the many accounting methods, practices and results which are not understood or are misunderstood in railroad work, none is more troublesome than the item called Store Expense. The Interstate Commerce Commission has prescribed a classification of operating revenues and operating expenses to be used by steam railroads, or in other words rules for primary accounting. Under the heading "Material Store Expenses" these rules prescribe:—

To a clearing account called Material Store Expenses shall be charged expenses in connection with purchasing, handling and storing material in and distributing it from the company's storehouses, including the pay of officers and employees in the purchasing and store departments and their traveling, office and other expenses; also all expenses, including wages, fuel and supplies of operating switching locomotives when exclusively assigned to the service of switching at material storehouses. The total amount of storehouse expenses charged to this account shall be so distributed among the accounts to which material has been charged that the amounts thus distributed will be, for each account, in proportion to the value of the material issued chargeable thereto . . . To avoid monthly fluctuations in the ratio of store expenses to the value of material purchased or issued, carriers may make a monthly apportionment on the basis of fair percentage rates, provided the store expense account be adjusted and closed out at the end of each year.

That would appear to be a simple clear statement, quite definite, and at the same time comprehensive. Notwithstanding that fact the "ratio of Store Expenses to the value of material" a figure more commonly known as "Store Expense percentage" has been the source of as much vehement discussion, as any political question of the day.

From time to time railroad officers become disturbed upon learning that the store expense percentage in use on their own railroad is higher than on another road. Almost as often as that occurs it results in an apparently endless series of explanations which are seldom understood and never satisfactory. An operating officer who finds that his expense for material is increased ten per cent is not at all ready to understand an explanation of why this should be so, if he knows that on another road, with which comparisons are sometimes drawn, the store expense is eight per cent.

The differences arise, of course, through differences in accounting practices, and in the accuracy or lack of accuracy in the reports upon which the accounting, in most cases, is based.

For instance, in the case of a road on which the stores forces deliver material to mechanics, the labor cost of this work is perhaps charged to "Material Store Expenses," but where this service is not provided, the cost of the work performed by other than store employees (generally by a large number of employees) is usually absorbed, to a considerable extent at least, in the labor charged to other work. Thus, though the actual expense is greater, the charge to material store expenses is less, and therefore the ratio of store expense to material issued tends to decrease.

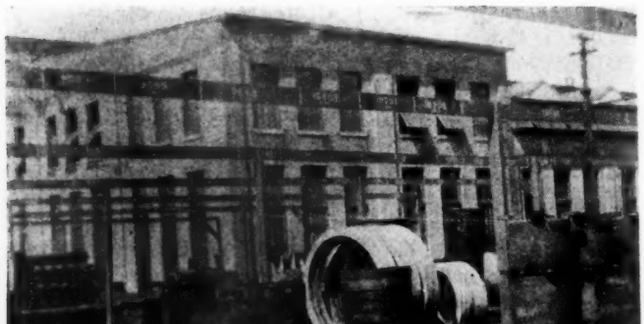
This is true also with other services in connection with material handling. Practices are not at all uniform. In a recent survey of 13 representative railroads it was found that 7 operated supply trains while 6 did not. Shop delivery of material by store forces was in use on 6 roads, partially on 3 others, while on 4 roads it was not in use. The cost of handling wheels at the wheel shop was charged to store expense on 3 railroads, and on 9 the cost was charged to maintenance of equipment. The cost of handling scrap material was charged to store expense on only 2 railroads, while on 11 roads it was charged to other accounts. These are merely examples of the differences in practices which prevent any comparison of the charges to store expense, or of the store expense percentage to be added to cost of material charged out.

The total of all amounts added as store expense to the value of material, cannot exceed the total charges to

Outside Materials at St. Paul, Minn.

store expense for labor and other expenditures. It is merely a matter of distributing these charges equally to each dollar of material charged out. The greater number of dollars, the lower the rate will be and vice versa. At this point, enters an element which is, probably, the most productive of variations in the store expense rate. New material is charged out at cost price, including freight and other expenses. But every railroad recovers and uses much material which is not new. Any discussion of the question as to what price should be used in charging out second-hand material is always productive of strenuous argument which convinces nobody. The man who thinks that it should be charged out at the same price as new is quite as thoroughly convinced as the man who says that it should not be charged at any value whatever, and so are the proponents of all of the percentages and fractional percentages in between. Obviously, the closer one is to the new price, the greater the number of dollars will be upon which to distribute store expense, and hence, the lower the store expense percentage will be. Whether the price of new material should be used in charging out second hand material, or, if not, what fraction of the new price, is a matter of opinion only, not subject to reason or mathematical demonstration. The solution of such a point is, of course, a rule based upon agreement, an agreement which could and would be enforced.

Another, and a rather common practice, which renders impossible any comparison of store expense percentages, is that of omitting the addition of store expense charge on certain classes of material, or material used for certain purposes. This includes for example, rail, ties and track fastenings, construction or maintenance material



Identification Marks Are Elevated at Superior, Wis., Because of Heavy Snow

delivered direct to the job, material used in special car construction programs and similar cases. In fact, it appears that in the great majority of instances where any work out of the ordinary is being carried out, there is an attempt, too often successful, to omit the store expense charge, entirely or partially. The result of all such practices is, of course, to increase the percentage for store expense which must be added to all other material charges. Thus, those who complain most about store expense are often the cause of the thing about which they complain.

All such practices are, therefore, not only evidences of poor judgment, but are also in violation of the accounting rules prescribed by the Interstate Commerce Commission. To quote again the Classification of Operating Expenses "The total amount of storehouse expenses charged to this account shall be so distributed among the accounts to which material has been charged that the amounts thus distributed will be, for each account, in proportion to the value of the material issued, chargeable thereto." Attention is directed to the phrase "for each account," included in the quoted rule. The addition of a greater proportion of the store expense to the cost of material in one account than in any other is therefore improper. The survey which has been mentioned showed that among the 13 representative roads tabulated there was a wide variation in practice in respect to the addition of store expense in such items as rail, ties, track fastenings, and in so-called "special" cases. It also showed an almost general practice to add a less proportion to the cost of material in such cases, than the proportion added to other charges.

It is evident that, if any comparisons of store expense percentages are to be made that there must first be uniformity of practices and accounting. Complete uniformity in stores practices is no doubt impossible, but a greater degree of uniformity can be obtained without increased expense. There is no question of expense involved in uniformity in accounting in connection with store expense, and the rule providing for uniformity in this respect has been provided by the Classification of Expenditures quoted. The subject is one which is worthy of the careful consideration of stores and accounting offices, and of action much more productive of results than the usual committee report.

I. C. C. Approves Rayburn Bill

(*Continued from page 224*)

termini are located, but it does not appear that such state could exercise any jurisdiction beyond its own borders. Even if it could, most of the transportation might be over the highways of an intermediate state, and yet the latter would have no voice in whether motor carriers of passengers or property should be authorized to operate over its highways. For example, the direct routes from New York City to many points in the state of New York are through New Jersey and Pennsylvania, and those states might have as much or more interest than New York in whether a motor bus or truck service should be established over their highways. There are numerous situations of this kind throughout the country."

The definition of "foreign operation" in paragraph (16) of section 1 (a) is confined to operations across the international boundary lines. This, the commission points out, would exclude transportation to or from a port for export or import. "Such traffic by rail is subject to the interstate commerce act, and we think the traffic by motor carriers should also be subject to our

jurisdiction. Otherwise, discriminations might arise because of the rates on export and import commerce being subject to regulation by different authorities."

In paragraph (4) of section 2 (a) the commission suggests that the words "To inquire into the management of the business of motor carriers;" be changed to read as follows: "To inquire into the organization of motor carriers and the management of their business."

In section 12 (b) there is a proviso which would prohibit the commission from requiring the removal of discriminations against interstate commerce caused by intrastate rates or fares. "Experience under the interstate commerce act has demonstrated," the report says, "the necessity of the commission having such authority to remove discriminations in the railroad rates or fares to and from intrastate and interstate points, respectively. In our judgment it will be advisable for us to have the authority to remove such discriminations in connection with motor transportation the same as rail transportation."

Attention is also called to the fact that the bill as drawn does not refer specifically to the matter of joint rates, fares, and charges. In the commission's opinion common carriers by motor vehicle should be authorized but not required to enter into such arrangements not only between themselves but also with common carriers by rail or water which are subject to the interstate commerce act. In the case of joint rates or fares with carriers subject to the interstate commerce act, they should be governed by that act. Such provisions would be in accord with the commission's recommendations in *Coordination of Motor Transportation*. Several other minor changes were suggested.

John T. Corbett, legislative representative of the Brotherhood of Locomotive Engineers, appeared with representatives of the other train service brotherhoods and testified in support of the bill at the request of the Railway Labor Executives' Association. He said labor had not been consulted in the preparation of the bill but that the encroachments of unregulated bus and truck transportation had had a serious effect on railroad labor and it had appreciated for years the necessity for regulation of motor transportation. "As representatives of the human side of the transportation business," he said, "we object to these unregulated peddlers of transportation," and he urged that some statutory limit be placed on the hours of service of operators of motor vehicles. After citing figures showing the heavy reduction in the number of railway employees in service Mr. Corbett said that since 1920 there had been a decrease of 61 per cent in the wages paid to railway employees.

Representatives of the American Newspaper Publishers' Association objected to the proposed regulation of contract trucks, saying that a large percentage of the newspapers have been forced to make arrangements for truck deliveries because the railroad passenger service had been so much curtailed. They said they objected to the constant threat that their costs for truck delivery should be increased because the contract truckers could make rates lower than the common carriers and opposed the idea of using rail rates as the yardstick for common carrier service by truck. Many other representatives of shippers took a similar position.

H. L. Schertz, counsel for the American Trucking Associations, Inc., was allowed to make a brief statement because he had been given only a short time for his original statement. He emphasized the difficulties that would be involved in policing the operations of thousands of trucks, saying the state commissions have not the facilities for doing so and that Congress would have to increase greatly the appropriations for the Interstate Commerce Commission.

George L. Phillips, representing the National Advisory Council of the Railroad Employees' and Taxpayers' Associations, appeared in support of the bill, emphasizing the adverse effect of unregulated motor transportation on the railroad employees. He said the committee served as a point of contact for 32 state associations of railroad employees and other taxpayers.

John E. Benton, general solicitor of the National Association of Railroad and Utilities Commissioners, in a final statement offered rebuttal of many of the statements that had been made by witnesses opposed to the bill and also some amendments, including one to remove some of the objections made by agriculture. In conclusion he referred to the growing recognition on the part of the public of the need for the regulation of highway transportation and said he did not think the committee would be impressed with the repeated statements that the 47 state commissions that have advocated the bill were merely trying to pull chestnuts from the fire for the railroads. He said it would be strange if all of them were dominated by the railroads.

New Books...

1933 Book of Standards for Testing Materials. Two volumes, 6 in. by 9 in., totaling 2,300 pages. Published by the American Society for Testing Materials, 260 South Broad street, Philadelphia, Pa. Both volumes in cloth, $14; in half leather, $17. Can be purchased separately.

Index to A. S. T. M Standards and Tentative Standards. 6 in. by 9 in., 124 pages. Published by the American Society for Testing Materials, 260 South Broad street, Philadelphia, Pa. Bound in paper. Distributed free.

The 1933 issue of the book of A. S. T. M. standards presents in printed form all of the standard specifications, methods of test, recommended practices and definitions adopted formally by the society. The book is published triennially, with a supplement issued in each intervening year containing standards adopted during that year.

The 1933 standards are presented in two volumes, Part I and Part II, both of which deal with many subjects of interest in the railway field. Together they contain 466 standard specifications. Part I, which contains 1,000 pages, includes 185 specifications, in addition to test methods and definitions, relating specifically to ferrous and non-ferrous metals, including such as steel, wrought iron, iron castings, ferro-alloys, aluminum, magnesium alloys, copper, lead, nickel, zinc, bearing metals and electrical-heating and electrical resistance alloys. Part II, which contains 1,300 pages, deals with non-metallic materials, including such materials as cement, concrete and concrete aggregates, brick, coal, timber and timber preservatives, paint and other painting materials, petroleum products and lubricants, waterproofing and roofing materials, refractories and fire brick, and electrical insulating materials.

Several changes have been made in the 1933 edition to facilitate its use. In both parts the specifications for a particular class of material are given first and are followed immediately by test methods, definitions, etc. Each volume has two tables of contents, one a listing of the standards by the materials covered, and the other a listing of the standards in numerical sequence of their serial designations. In addition to these tables, each volume contains a complete subject index.

The index to the A. S. T. M. standards and tentative standards combines under one cover an index to all A. S. T. M. standards and tentative standards in effect as of October, 1933. The index is designed primarily to be of service to those interested in ascertaining if, when and where the American Society for Testing Materials has issued specifications, methods of testing, recommended practices or definitions with regard to a specific subject in the field of engineering materials or the allied field of material testing.

NEWS

Class I Roads in 1933 Earned $474,369,438

Return of 1.8 per cent compares with 1.24 per cent in 1932 when net was $326,317,936

Class I railroads in 1933 had a net railway operating income of $474,369,438, which was a return of 1.80 per cent. on their property investment, according to reports compiled by the Bureau of Railway Economics. The net railway operating income in 1932 was $326,317,936 or 1.24 per cent. While revenue freight carloadings in 1933 increased 2.8 per cent above 1932, freight revenue increased only 1.7 per cent. Freight revenue amounted to $2,492,735,344 in 1933, compared to $2,450,957,092 in 1932. Passenger revenue in 1933 amounted to $329,341,854, a decrease of $47,753,519 or 12.7 per cent compared with 1932.

Total operating revenues in 1933 amounted to $3,095,446,191 compared with $3,126,889,091 in 1932, a decline of 1 per cent. Operating expenses totaled $2,249,318,750, compared with $2,403,543,795 in 1932, a decrease of 6.4 per cent. The operating ratio was reduced from 76.87 per cent in 1932 to 72.67 per cent in 1933. Class I railroads in 1933 paid $249,539,964 in taxes, a reduction of $25,631,897 or 9.3 per cent compared with 1932.

Thirty-three Class I railroads operated at a loss in 1933, of which 7 were in the Eastern district, 8 in the Southern, and 18 in the Western.

For December, 1933, net railway operating income amounted to $37,763,877, which was a return of 2.35 per cent on property investment. In December, 1932, the net was $32,304,894, or 2 per cent. Total operating revenues for December amounted to $245,329,548, compared with $243,346,573 in December, 1932, an increase of 0.8 per cent. Operating expenses totaled $187,081,366, compared with $186,039,881 in the same month the year before, an increase of 0.6 per cent.

Net railway operating income of Class I railroads in the Eastern district in 1933 amounted to $281,896,607, a return of 2.32 per cent. In 1932 their net was $217,119,582, or 1.79 per cent. Operating revenues in the Eastern district in 1933 aggregated $1,583,684,630, a decrease of 0.9 per cent. under 1932, while operating expenses totaled $1,115,062,066, a decrease of 5.7 per cent under 1932. Class I railroads in the Eastern district for December had a net of $20,120,406, compared with $19,693,556 in December, 1932.

Railroads in the Southern district in 1933 earned a net of $59,673,027, or 1.82 per cent. In 1932, the net amounted to $25,802,847, or 0.78 per cent. Operating revenues in the Southern district in 1933 amounted to $388,511,754, an increase of 2.8 per cent over 1932, while operating expenses totaled $291,234,180, a decrease of 6.8 per cent. Net railway operating income in the Southern district in December amounted to $6,610,566, while in the same month of 1932 it was $5,877,358.

Railroads in the Western district in 1933 earned a net of $132,799,804, or 1.22 per cent. In 1932 they had a net of $83,395,507, a return of 0.76 per cent. Operating revenues in the Western district in 1933 aggregated $1,123,249,807, a decrease of 2.5 per cent under the preceding year, while operating expenses totaled $843,022,504, a decrease of 7.3 per cent compared with 1932.

For December, net in the Western district amounted to $11,032,905. In December, 1932, it totaled $6,733,980.

CLASS I RAILROADS—UNITED STATES

Month of December

	1933	1932	Per Cent Increase
Total operating revenues	$245,329,548	$243,346,573	0.8
Total operating expenses	187,081,366	186,039,881	0.6
Taxes	11,235,146	15,565,652	D. 27.8
Net railway operating income	37,763,877	32,304,894	16.9
Operating ratio—per cent	76.26	76.45	...
Rate of return on property investment	2.35%	2.00%	...

Twelve Months Ended December 31

Total operating revenues	$3,095,446,191	$3,126,889,091	D. 1.0
Total operating expenses	2,249,318,750	2,403,543,795	D. 6.4
Taxes	249,539,964	275,171,861	D. 9.3
Net railway operating income	474,369,438	326,317,936	45.4
Operating ratio—per cent	72.67	76.87	...
Rate of return on property investment	1.80%	1.24%	...

Emergency Board Appointed For D. & R. G. W. Dispute

President Roosevelt on February 1 appointed an emergency board to investigate the controversy between the Denver & Rio Grande Western and its train service employees who had voted to strike on February 3 on account of a large accumulation of grievances. The board consists of Walter P. Stacy, of North Carolina, Frank T. Douglass, of Oklahoma City, Okla., and Huston Thompson, of Washington, D. C.

Bennett Defends Loan Guarantee to Can. Pac.

Private refinancing impracticable, Premier likens guarantee to R. F. C. loans

Premier Bennett of Canada last week in Parliament at Ottawa warmly defended the Government's action in guaranteeing a loan of $60,000,000 which action without debate was criticized by the Liberal (opposition) leader, Rt. Hon. W. L. Mackenzie King, challenging any other administration to have done differently under the circumstances. He admitted that he and his colleagues approved of the assistance reluctantly, and read to the House the report of a sub-committee of the Cabinet on the question of guaranteeing the loan. It was on the report to the whole Cabinet that the Government's backing was based. The report of the sub-committee read in part as follows:

The committee of the privy council have had before them a joint report, dated November 28, 1933, from the Right Honorable the Prime Minister, the Minister of Finance and the Minister of Labor, submitting:

1. That they have had under consideration a request to the government from the Canadian Pacific Railway Company for a guarantee of a loan of sixty millions of dollars to be borrowed from:

Bank of Montreal
The Royal Bank of Canada
The Canadian Bank of Commerce
The Bank of Nova Scotia
The Dominion Bank
The Bank of Toronto
The Imperial Bank of Canada and
Banque Canadienne Nationale

and to be repaid on or before the 1st day of December, 1938, with interest at the rate of five per centum per annum, payable half-yearly, secured by the deposit with and pledge to the said banks by the said railway company of its perpetual four per cent consolidated debenture stock having a nominal or par value of One Hundred Millions of Dollars.

2. That the amount to be loaned by each of the said several banks to the said railway company is as follows.

Bank of Montreal	$22,444,000
The Royal Bank of Canada	12,280,000
The Canadian Bank of Commerce	10,524,000
The Bank of Nova Scotia	5,180,000
The Dominion Bank	2,808,000
The Bank of Toronto	2,632,000
The Imperial Bank of Canada	2,632,000
Banque Canadienne Nationale	1,500,000
Total	$60,000,000

3. That careful consideration has been given to the request of the said railway company and it appears that the capital obligations and indebtedness payable by the said railway company in the United States of America between the first day of June, 1933, and the first day of December, 1934, amount in the aggregate to $32,788,000. The capital obligations and indebtedness payable in the Dominion of Canada during the same period by the said railway company amount in the aggregate to $27,000,000. Of the said capital obligations and indebtedness of $32,788,000 payable in the United States of America, $2,544,000, part thereof, are payable in either the United States of America or in Great Britain.

4. That the said capital obligations and indebtedness of the said railway company have been incurred in the usual conduct of the business, and it has been the practice of the said

railway company to retire its outstanding capital obligations by the sale, from time to time, of its perpetual four per cent consolidated debenture stock, but, under the economic conditions which have prevailed for some time, it has been impossible and is still impossible to sell such perpetual consolidated debenture stock, or any other securities of the said railway company on satisfactory terms, if at all, either in the Dominion of Canada or in the United States of America.

5. That the president of the said railway company recently visited London, England, and has reported that it is impossible to secure permission, under existing economic conditions, to make a public offering of the securities of the said railway company in the United Kingdom; and, further, that it is not practicable presently to renew the obligations of the said railway company maturing in the United States of America.

6. That after careful investigation it was apparent that the only source from which money could be borrowed by the said railway company to meet its said maturing capital obligations and indebtedness was the chartered banks of Canada, and such banks do not make loans for a period of five years unless they are so adequately secured or guaranteed as to enable the said banks to rediscount or obtain advances on the notes of the borrower and thus render available for the conduct of their ordinary commercial business the whole or such portion of the advances made as may be required; and, under existing economic conditions, with the low level of prices for railway securities, the guarantee of repayment by the Dominion of Canada was necessary if the said loan of $60,000,000 was to be made to the said railway company by the said banks.

7. That the perpetual four per cent consolidated debenture stock of the said railway company is widely distributed in various parts of the world, particularly in the United Kingdom, where the market price thereof has in recent months been as high as 85 per cent of the par value thereof, and, in the opinion of the ministers, failure by the said railway company to pay and discharge its said capital obligations and indebtedness at maturity would create a situation injurious to the credit and financial position of the dominion.

8. That, under the provisions of the Relief Act, 1933, the governor in council is authorized and empowered to loan or advance money to or guarantee the payment of money by any public body, corporation or undertaking, and in respect of such loans, advances and guarantees, may accept such security, enter into such agreements, and generally do all such things as the governor in council may deem necessary and expedient in the public interest; and to take all such measures as in his discretion may be deemed necessary or advisable to protect and maintain the credit and financial position of Canada.

9. That the said railway company is a public corporation carrying on its operations not only in Canada but in other parts of the world; and, in the opinion of the ministers, under present disturbed economic conditions, it is desirable, to prevent default by the said railway company in discharging its said capital obligations and indebtedness as they mature, and in the public interest, to grant the request of the said railway company as a measure for the protection and maintenance of the credit and financial position of Canada.

Premier Bennett told of the wide-spread holdings of C. P. R. debenture stock and of the harm which would result to the holders and the credit of Canada in the event of a default and drew an analogy between this guarantee and the loans made by the R. F. C. to American railroads for a similar purpose.

Northern Pacific Farm Colonization Increased in 1933

An increase of 50 per cent in the actual number of settlers placed on Northwest farms through the colonization activities of the agricultural development department of the Northern Pacific occurred in 1933, as compared with the preceding year. The most pronounced land settlement drifts in the Northwest have been from Southern California to Oregon and Washington; from the central intermountain states to the irrigated areas of Washington and western Montana; from the corn belt states to northern Minnesota; and from larger cities and towns to nearby small suburban farm tracts.

Strike Vote to be Taken on North Western

Executive of 13 railway labor unions, through their co-operating committees, voted on February 5 to take a strike vote among the members of those unions employed by the Chicago & North Western. The unions involved include all the rail labor organizations except those of the conductors, engineers and telegraphers. The decision to take a strike vote is the most recent development in a controversy between union officers and the management. The unions contend that the road has made no reply to a demand for the adjustment of 512 grievances, some of which run back to 1928, and most of which relate to alleged failure to observe seniority rights when laying off employees. According to the management, the dispute involves interference in the application of discipline and centers around the company's strict enforcement of safety regulations. The taking of the strike vote will require several weeks.

New York Railroad Club Changes Meeting Place for February

A change for this month from its regular meeting place has been announced by the New York Railroad Club, which will hold its next meeting on February 16 in the auditorium of the Western Union building, 60 Hudson street, New York.

The program will include addresses by J. W. Milnor, research engineer, engineering department, Western Union Telegraph Company, who will give an illustrated talk on "Developments in Carrier Current Telegraphy," and R. F. Finley, general superintendent of telegraph and telephone, New York Central Lines, who will speak on "Developments of Communication Facilities on the New York Central Lines." Following the addresses and a musical program, those attending the meeting will be taken on a tour of the Western Union operating rooms.

C. H. Carroll, assistant general manager, Metropolitan division, will be in charge of the program for the Western Union, and in addition will discuss "The History and Development of the Telegraph."

Eleven Months Deficit $29,449,730

Class I railroads for the first eleven months of 1933 had a net deficit of $29,449,730 after interest and fixed charges, as compared with a deficit of $154,308,127 for the corresponding period of 1932, according to the Interstate Commerce Commission's monthly compilation of selected income and balance sheet items. For the month of November the deficit was $5,275,886. For eleven months the net railway operating income was $435,804,479 and other income amounted to $157,036,975, while the total deductions amounted to $622,291,184. Loans and bills payable at the end of November amounted to $339,810,096. The statement follows:

SELECTED INCOME AND BALANCE-SHEET ITEMS OF CLASS I STEAM RAILWAYS

Compiled from 145 reports (Form IBS) representing 150 steam railways

TOTALS FOR THE UNITED STATES (ALL REGIONS)†

For the month of November			For the eleven months of	
1933	1932	*Income Items*	1933	1932
$37,565,825	$33,396,302	1. Net railway operating income	$435,804,479	$294,012,750
13,612,276	14,388,875	2. Other income	157,036,975	177,911,113
51,178,101	47,785,177	3. Total income	592,841,454	471,923,863
11,007,104	10,854,802	4. Rent for leased roads	121,481,801	118,481,786
43,708,362	44,521,737	5. Interest deductions	486,630,564	485,297,116
1,738,521	2,322,268	6. Other deductions	14,178,819	22,453,088
56,453,987	57,698,807	7. Total deductions	622,291.184	626,231,990
d 5,275,886	*d 9,913,630*	8. Net income	*d 29,449,730*	*d 154,308,127*
		9. Dividend declarations (from income and surplus):		
12,433,202	11,041,247	9-01. On common stock	59,269,299	65,418,563
930,599	1,032,009	9-02. On preferred stock	11,629,249	14,744,964

BALANCE-SHEET ITEMS

Selected Asset Items

	Balance at end of November	
	1933	1932
10. Investments in stocks, bonds, etc., other than those of affiliated companies (Total, Account 707)	$753,053,279	$749,489,293
11. Cash	340,968,116	337,895,366
12. Demand loans and deposits	40,195,729	35,178,646
13. Time drafts and deposits	57,313,344	39,699,253
14. Special deposits	28,781,614	28,222,267
15. Loans and bills receivable	10,118,930	17,314,670
16. Traffic and car-service balances receivable	53,324,141	48,489,850
17. Net balance receivable from agents and conductors	43,409,467	40,319,117
18. Miscellaneous accounts receivable	136,729,885	136,040,849
19. Materials and supplies	295,733,117	319,254,832
20. Interest and dividends receivable	49,373,672	48,111,906
21. Rents receivable	2,670,734	2,268,736
22. Other current assets	4,457,119	9,613,542
23. Total current assets (Items 11 to 22)	1,063,075,868	1,062,409,034
Selected Liability Items		
24. Funded debt maturing within six months*	297,222,440	221,752,428
25. Loans and bills payable‡	339,810,096	280,010,457
26. Traffic and car-service balances payable	66,943,693	68,539,077
27. Audited accounts and wages payable	217,277,893	222,839,587
28. Miscellaneous accounts payable	56,970,689	60,817,428
29. Interest matured unpaid	216,324,834	157,556,961
30. Dividends matured unpaid	4,779,955	4,969,283
31. Funded debt matured unpaid	96,000,760	49,480,470
32. Unmatured dividends declared	13,124,185	11,944,860
33. Unmatured interest accrued	124,742,319	124,638,499
34. Unmatured rents accrued	40,135,889	38,116.387
35. Other current liabilities	14,571,692	16,808,079
36. Total current liabilities (Items 25 to 35)	1,190,682,005	1,035,721,088

† Excludes returns for Class I Switching and Terminal Companies.

* Includes payments which will become due on account of principal of long-term debt (other than that in Account 764, Funded debt matured unpaid) within six months after close of month of report.

‡ Includes obligations which mature less than two years after date of issue.

d Deficit.

Nebraska Court Rules on Full-Crew Law

The Nebraska supreme court, on January 27, reversed an order of the State Railway Commission which had upheld the contention that a crew of an engineman, fireman, conductor and either brakeman or flagman must be carried on one-car motor trains under the full-crew law.

Extension of Waterways Act to Columbia and Snake Rivers Proposed

The Senate on February 2 passed a bill introduced by Senator Borah, of Idaho, extending the provisions of the Inland Waterways Corporation act to include the Columbia and Snake rivers, so that operators proposing to engage in service on those rivers may apply to the Interstate Commerce Commission and obtain certificates of public convenience and necessity.

Union Pacific Train to Be Exhibited

The Union Pacific's light-weight, high-speed passenger train will be delivered to the railroad at Chicago on February 12 and will be placed on public exhibition at Washington, D. C., on February 16. Following appearances at Baltimore, Md., on February 17, Pittsburgh, Pa., on February 19 and Detroit, Mich., on February 21, the train will be shown in Chicago on February 23 and 24, after which it will be exhibited at Omaha, Neb., on February 26 and later at 48 cities on the Union Pacific.

Free Waterway Lightly Used

A check of traffic moving on the Ohio river at Portsmouth, Ohio, which was made continuously from November 11 to December 11 by the Ohio Railroad Employees and Citizens League, disclosed total movements in both directions which averaged but 4.4 daily. Such a slight degree of utilization of a facility offered free to shippers, officers of the league point out, illustrates the folly of the continued expenditure of taxpayers' money in the effort to perpetuate an outmoded form of transportation.

Another Distribution by Railroad Credit Corporation

The Railroad Credit Corporation in January made its fifth liquidating distribution to the participating carriers, bringing the total refunds to $8,143,558, or 11 per cent of the net contributions to the pool by the railroads of funds derived from increased freight rates to March 31, 1933, under Ex Parte 103.

The refund made in January amounted to $717,565 or one per cent of the fund. Of the $8,143,558 repaid, $3,355,955 was in cash and $4,787,603 was in credit allowances.

One Locomotive and 1,879 Freight Cars Placed in Service Last Year

The railroads of the United States placed 1,879 new freight cars in service in 1933, according to reports received by the Car Service Division of the American Railway Association. In 1932, reports showed that 2,968 new freight cars were installed. The railroads on January 1, 1934, had 224 new freight cars on order compared with 2,431 on the same day last year. The railroads placed only one new locomotive in service in 1933 compared with 37 in 1932. Only one new locomotive was on order on January 1, this year, compared with three on the same day last year.

Armco "Ironmaster" Gives Railway Talk on Radio

Bennett Chapple, vice-president and director of publicity of the American Rolling Mill Company, Middletown, Ohio, discussed new developments in railway transportation in one of his recent "Ironmaster" talks, which are a feature of the regular Armco Friday evening radio programs. Mr. Chapple touched briefly upon such new phases of railroading as streamlined trains and the work of the federal co-ordinator of transportation. He also said that "The release of tremendous buying power and the re-employment of thousands of men by the railroads is one of the great harbingers of Spring."

Congress Asks President for Comprehensive River Development Plan

The Senate on February 1 adopted a resolution proposed by Senator Norris, of Nebraska, requesting the President to send to the Senate a comprehensive plan for the improvement and development of the rivers of the United States, "with a view of giving Congress information for its guidance in legislation which will provide for the maximum amount of flood control, navigation, irrigation and development of hydroelectric power." A similar resolution was introduced in the House on the following day by Representative Wilson, of Louisiana, and passed, asking that the report be also submitted to the House.

Meeting of Central Railway Club Postponed to February 15

The meeting of the Central Railway Club of Buffalo, N. Y., which was to have been held on February 8, has been postponed to February 15 because of the death of the club's recently-elected president—M. L. Campbell, operating manager of the International Railway. The program for the February 15 meeting, which will be held at the Hotel Statler, Buffalo, is the same as that originally planned for February 8. The meeting has been designated as maintenance of way night and will be featured by a paper on gang organization to be presented by I. H. Schram, engineer, maintenance of way, Erie, Jersey City, N. J.

I. C. C. Suspends Reduced Rates on Wine

The Interstate Commerce Commission has suspended from January 29 to August 29, tariff schedules filed by the railroads proposing to establish reduced transcontinental rail rates on wines, vinous liquors, and wine or brandy seasoning, in carloads, from Pacific coast origins to destinations in Official territory east of the Illinois-Indiana state line, Groups A, B, and C, to alternate with the present rates. The carload rate with a 30,000-lb. minimum is $1.13, and it was proposed to establish a rate of $1.05 with a 40,000-lb. minimum and a rate of 90 cents with a 50,000-lb. minimum, the basis that is now applicable between Colorado common points and the Illinois-Indiana state line.

Railway Employment in January

The number of employees of Class I railways, excluding switching and terminal companies, at the middle of the month of January, was 965,650, according to the Interstate Commerce Commission's monthly statement, an increase of 2.08 per cent as compared with the number in January, 1933. The number was also 1,613 greater than that for December. As compared with January of last year the number of executives, officials and staff assistants, however, showed a reduction of 4.69 per cent.

The more detailed statement for November shows a total of 997,511 employees as of the middle of the month and a total compensation of $119,579,490. It also shows that 1,103,046 employees received some pay during the month either for full time or part time.

Co-Ordinator Eastman Reduces Staff

Co-ordinator Eastman since January 15 has reduced his staff by 26 persons who had been engaged in research work or clerical employment in connection with it which was completed when Mr. Eastman submitted his first report, made public on January 20. A considerable part of the work which was completed was that in connection with the investigation of the Prince plan, under the direction of W. B. Poland, while some of it represented research work on subjects on which reports are yet to be made. At the peak the number of employees on the Co-ordinator's staff was 117, not including employees of the Interstate Commerce Commission assigned to his work. The members of the staff who have completed their work include W. B. Poland, H. D. Folsom, W. L. Fulton, F. R. Bell, P. A. Conway, Warner Tufts, F. W. Powell, Richard Eldridge, T. K. Urdahl, and S. A. Oyen.

New Jersey Commissioners Prescribe Rates on Petroleum Coke

The Public Utility Commissioners of New Jersey, acting on a complaint of the Great Lakes Coal & Coke Company, have decided that the freight rates on petroleum coke, petroleum coke breeze, and these commodities mixed with coal, from Port Newark, N. J., to points within 60 miles, which now are higher than the rates on by-product coke from Seaboard, N. J., are unreasonable and must be made the same as the rate on by-product coke from Seaboard. The "mixture" must be not less than 50 per cent of petroleum coke breeze, combined with not more than 50 per cent of coal, anthracite or bituminous. The Seaboard mileage scale of rates is to become effective February 1.

Both Port Newark and Seaboard are freight stations on Newark harbor, each served by two or more railroads. Petroleum coke and "breeze" (dust) are produced in Texas and brought to New Jersey by steamer. Petroleum coke is somewhat

heavier per cubic foot than by-product coke, but this is held not sufficient to affect the comparison of freight rates.

Sir Robert S. Horne Elected Chairman of Great Western of Great Britain

Sir Robert S. Horne has been elected chairman of the Great Western of Great Britain to succeed the late Viscount Churchill. The new chairman has been a director of the Great Western since 1923.

Proposed Railroad Labor Legislation

The full-crew and train-limit bills proposed by the Association of Railway Labor Executives, which had been introduced in the House by Representative Griswold, of Indiana, have also been introduced in the Senate by Senator Wheeler, of Montana, as S. 2624 and 2625. The bill proposed by the labor leaders to amend the railway labor act has been introduced in the Senate by Senator Dill, of Washington, as S. 2651 and in the House by Representative Crosser, of Ohio, as H. R. 7650. They have also introduced as S. 2411 and H. R. 7649 bills to amend the emergency transportation act of 1933 to extend its provisions to sleeping car and express companies. Senator Ashurst, of Arizona, has introduced as S. 2510 a bill to extend the provisions of the employers' liability act. Senator Wagner, of New York, has introduced a bill to establish a system of unemployment insurance, applying to employers generally, but containing a specific exemption of railroad employees.

Exception of Railroad-Owned Vessels From Shipping Code Asked

A request that the proposed N. R. A. code for the shipping industry contain a specific statement excepting vessels of companies whose stock is wholly owned by or which are operated by railroad companies and which are subject to the provisions of the interstate commerce act and to the jurisdiction of the Interstate Commerce Commission, and subject also to the provisions of the Emergency Transportation Act, 1933, was made on behalf of the railroads by J. Carter Fort, general solicitor of the Association of Railway Executives, at the hearing on the shipping code on January 31. Mr. Fort endorsed language to this effect which had been offered in an amendment by W. R. C. Cocke, general counsel of the Seabord Air Line, who had appeared at a former hearing on behalf of certain railroad-owned steamship lines. Mr. Fort said that the language proposed would be adequate for the purpose but he asked that if it were not adopted specific provision should be made in the code to make certain that railroad floating equipment was excepted.

Fourth International Congress for Applied Mechanics

In accordance with the resolution adopted at Stockholm in 1930 the Fourth International Congress for Applied Mechanics will be held in Cambridge, England, July 3 to 9. An English organizing committee has been formed and the Applied Mechanics Division of the American Society of Mechanical Engineers is co-operating with the committee with the idea of co-ordinating the participation of other American groups in this congress. The subjects to be discussed will be grouped under four general headings: Rational Mechanics, including vibrations of structures and machines; Mechanics of Fluids, including turbulence, the boundary layer, heat transfer and compressible fluids; Materials, including elasticity, plasticity, fatigue and crystal structure, and Water Waves, including resistance and stability of ships and seaplanes.

Inquiries regarding the Congress and promises of manuscripts should be addressed to the Applied Mechanics Division of the A. S. M. E., 29 West Thirty-ninth street, New York. Summaries of about 300 words in length, written in English, German, French or Italian, will be required about April 1.

Penalties

"Penalties" is the title of the illustrated safety lecture, issued by the committee on education, Safety division, A. R. A., for the month of February. Penalties for disobeying or ignoring safety rules are illustrated by a half dozen pictures, the first one, which is designed for a poster, showing a man going to prison for violation of law. The second lesson, which may be in various respects more serious, is embodied in a picture of an injured employee lying on a stretcher. He violated a safety rule and may be filled with regret perhaps more poignant than that felt by the other man. The third example tells of Bill Jones, who jumped from the top of one moving car to the top of another on the adjacent track. The trainmaster saw him and he was suspended for five days. Leaving a baggage truck too near a moving train is the subject of an alarming picture, and the wearing of clothes which get caught in machinery is another subject.

Simply to study the statistics is often a salutary exercise, if done faithfully and with persistence. For instance, going without goggles is particularly dangerous when cutting rails. The trackman may not realize the risk that he takes in this work; but if he reads the record and finds that a larger percentage of eyes are put out among the men in the track service than in shop work, he has the lesson, plain as a pikestaff, to go and learn the goggle habit from the shopmen; and then to act on the lesson.

Northwest Shippers' Advisory Board

Over 300 shippers, railway officers and other persons attended the eleventh annual meeting of the Northwest Shippers' Advisory Board at Minneapolis, Minn., on January 30. The program included a discussion of plans for handling traffic in prospect for the second quarter of the year as a result of improved conditions in agriculture and business in the Northwest. Addresses were delivered by J. M. Fitzgerald, vice-chairman of the Committee on Public Relations of Eastern Railroads, and executive vice-president of the Associated Traffic Clubs of America; and F. P. Heffelfinger, vice-president of the Chamber of Commerce of the United States.

Mr. Fitzgerald advocated a co-ordinated system of transportation on a basis that would require each transport agency to perform the service for which it is best fitted and to "pay its own way." At present, he said, the railway is the only agency that pays its way, while the motor carrier does so only in part and the river barge even less. Mr. Heffelfinger told how the is doing to stimulate and stabilize business. national chamber is organized and what it

Officers elected for the ensuing year are as follows: General chairman, A. A. D. Rahn, vice-president of the Shevlin, Carpenter & Clarke Company, Minneapolis, Minn.; alternate general chairman, Peter A. Lee, secretary of the Farmers' Grain Dealers' Association, Grand Forks, N. D.; and general secretary, Martin F. Smith of the Southern Minnesota Mills, Minneapolis (re-elected).

Airlines Increase Passenger and Express Traffic in 1933

Scheduled airlines in the United States flew more miles and carried more passengers and express in 1933 than in any other year since the airplane became a part of the nation's transportation facilities, according to an announcement by Eugene L. Vidal, director of aeronautics in the Department of Commerce. The domestic airlines carried 493,141 passengers in 1933, as compared with 474,279 in the previous year. All of the statistics are for lines within the borders of the United States only, as reports of traffic on foreign extensions are not yet complete. Merchandise and other articles dispatched by air express amounted to 1,510,215 pounds, an increase of nearly 50 per cent over the 1,033,970 pounds carried in 1932. Miles flown were 48,771,553 in 1933, as compared with 45,606,354 in 1932. Passenger-miles flown increased at a greater rate than the actual number of passengers, indicating longer journeys per passenger. In 1933 passenger-miles flown totaled 173,492,119 as against 127,038,798 in 1932.

Reports for December showed that 26,711 passengers and 172,854 pounds of express were carried on the domestic airlines during that month. The lines flew 3,385,886 miles and 10,410,709 passenger-miles during December. Reports have been received from all of the 24 companies operating during the period.

Increases were evident in the last six months of 1933 over the corresponding period in 1932 and in December 1933 over December 1932.

Confer on Steel and Car Codes

Problems arising between railroads and manufacturers of steel in connection with the application to railway purchases of the Steel code as prepared in compliance with the National Recovery Act were discussed at a joint meeting in New York by the Commercial and Traffic committees of the American Iron and Steel Institute and the Code committee of the Association of Railway Executives, appointed by R. V. Fletcher, general counsel, who was repre-

sented at the meeting by J. Carter Fort, general solicitor of the association.

It was indicated that some purchasing officers are inclined to view the Steel code and its commercial resolutions lightly and that, as the result, many misinterpretations have arisen. The Code committee, according to a bulletin issued on January 22 to members of the Purchases and Stores Division, A. R. A., by the secretary, W. J. Farrell, has undertaken to reconcile the different interpretations, but has advised the railroads that the provisions of the code should be adhered to in spirit and in fact. The committee of the American Iron and Steel Institute has manifested a helpful attitude and is endeavoring to administer the provisions of the code in an impartial manner, according to the bulletin. Decisions to date hold that the delivered price as provided for under the code must be maintained and that steel and its products should be purchased by the railroads accordingly. Specific complaints of railway purchases were considered at the meeting, and it was announced that other rulings will be made in the immediate future and brought to the attention of the railroads without delay.

The Code committee also met in Washington, D. C., on January 19 and conferred with F. H. Kuhn, assistant deputy administrator, N. R. A., about inconsistencies appearing in the proposed code for the car building industry, and the Code Committee of the Railway Executives' Association has been further enlarged by the general counsel to include as alternates J. L. Bennett, purchasing agent, Central of Georgia, E. A. Clifford, general purchasing agent, Chicago & North Western, and A. W. Munster, vice-president, Boston & Maine.

Code Approved for Water Carriers

Administrator Johnson of the N. R. A. has approved a code for the inland water carrier trade in the Eastern division of the United States operating via the New York canal system. This code, which becomes effective February 16, is defined as embracing a specialized operation by means of which a substantial portion of the commodities moving between the Atlantic seaboard and the Great Lakes region are transported by way of the New York canal system and the Saint Lawrence river. The code is designed to be co-ordinated with a proposed code of fair competition for the inland water carrier trade in the United States, which may become a section of a general code of fair competition for the shipping industry. The code provides for the establishment of minimum rates. Such minimum rates shall be established by the majority vote of the members of the code, but are subject to the disapproval of the administrator, before becoming effective. When effective such minimum rates may be protested when it is felt that they are discriminatory and the administrator, before making his final decision, shall consider the examination and recommendation of the Division of Regulations of the U. S. Shipping Bureau, Department of Commerce, or the Interstate Commerce Commission. The labor provisions set a maximum work week of 44 hours for shore employees during the peak season, representing a drop from 60 hours previously worked in some instances. General Johnson's letter informing the President of approval says, however, that the number of shore employees is so small that probably not more than fifty additional will be employed, in this category, as a result of this maximum hour provision. In the case of vessel employees, because of complexities of operation and the limited facilities for berthing crews, it was not deemed practical to attempt a drastic change in the present schedule of hours without first making a comprehensive survey of the labor and operating conditions in the trade. The code authority is charged with the responsibility of making this survey and submitting to the administrator within 60 days a revised schedule of minimum wages and working conditions aboard vessels. The code establishes an Industrial Relations Board to deal with labor disputes.

I. C. C. Considering Sinking Funds; C. & N. W. Proposes Plan

As forecast in its annual report the Interstate Commerce Commission is giving active consideration to opportunities for requiring railroads to set up sinking funds for the purpose of retiring a part of their funded debt. Each railroad that applies to the commission for authority for a bond issue receives a letter from Oliver E. Sweet, director of the commission's Bureau of Finance, asking what consideration has been given to the possibility of the creation of a sinking fund and, if not, what objection, if any, there would be to creating such a fund now. One of the first opportunities that came before the commission was an application of the Chicago, Burlington & Quincy for authority to issue $2,000,000 of general mortgage 4 per cent. bonds. In reply to the questions Bruce Scott, vice-president and general counsel of the company, pointed out that the general mortgage is practically a closed one, $65,247,000 of the bonds having been issued and only $9,873,000 left in the Treasury, of which the $2,000,000 was a part. He pointed out that there would be no benefit to the company in now giving additional security for the outstanding bonds and that establishment of a sinking fund for the entire issue on a 50-year basis would require for the first year almost as much as the company expected to derive from an issue of $2,000,000. The commission authorized the issue. A similar question was put to the Western Maryland, which had asked authority for an issue of $1,776,000 of first and refunding mortgage bonds. The company replied that there was no occasion for the creation of a sinking fund for the bonds and that its financial condition was not such as to enable it to maintain such a fund.

A definite plan for the establishment of a sinking fund has been proposed in a letter from Samuel T. Cady, vice-president and general counsel of the Chicago & North Western, which had applied for authority for the authentication and delivery of $7,725,000 of first and refunding mortgage bonds. He said it had been approved by President F. W. Sargent and that if approved by the trust company, it was expected to submit it to the directors on February 14. The plan devised contemplates that the sinking fund be used not only to purchase first and refunding bonds but also others for the refunding of which the first and refunding mortgage authorizes the issuance of bonds. The plan contemplates that nothing shall be paid into the sinking fund until after the company earns its fixed charges. Thereafter a certain percentage of the net income would be paid into the sinking fund, the percentage increasing with the amount of the net income, starting at 3 per cent for the first $2,500,000 and running up to 20 per cent for any amount over $20,000,000. Mr. Cady said that if this plan had been in effect during the nine-year period from 1922 to 1930, it would have resulted in creating a sinking fund of $4,607,402, the average amount which would have been paid into the fund being $511,933 a year.

Transport Conference Agrees on Motor Carrier Regulatory Principles

The "Transportation Conference of 1933," meeting in New York on February 7 under the chairmanship of Harry A. Wheeler, president of the Railway Business Association, reached an agreement as to the principles which should govern the regulation of interstate highway carriers and a copy of this statement of principles was laid before Chairman Rayburn of House committee on interstate and foreign commerce in Washington on February 8.

The principles agreed to by the Conference conform very closely to the provisions of the Rayburn Bill for the regulation of interstate highway carriers which is now being considered by the House committee. They embrace regulation by the Interstate Commerce Commission, with the co-operation of the State commissions, of common, contract and "anywhere for hire" interstate carriers of persons or property on the highways, the regulation to embrace control over rates, services and the granting or the withholding of permission to operate. The Conference also favored adequate insurance or indemnity bonds and believed that the regulation of safety aspects of highway transportation could be left with the States with the exception that hours of labor in interstate commerce should be under the jurisdiction of the federal government.

Constituent associations of the conference are as follows: National Association of Manufacturers; Canal Carriers' Associations, Inc.; American Transit Association; National Highway Freight Association; Association of Railway Executives; American Iron & Steel Institute; American Bankers Association; Security Owners Association; National Association of Mutual Savings Banks; National Industrial Conference Board; Railway Business Association; Grain and Food Dealers National Association; American Meat Packers; American Short Line Railroad Association; Association of Regulated Lake Lines.

The Conference has held 15 sessions and it is understood that it will shortly be ready to present its comprehensive report covering the entire transportation situation.

Equipment and Supplies

Public Works Administration Loans Bring Orders for Equipment and Employment

Chesapeake & Ohio, Erie and New York, Chicago & St. Louis distribute orders among 15 builders for 12,725 freight cars, 159 passenger cars and 20 locomotives

Loans heretofore allotted to railroads by the Public Works Administration for maintenance and equipment are being rapidly translated into orders for equipment and supplies and are causing the return of many thousand railroad shopmen to work as the details of the negotiations with the government are being cleared up and contracts are being signed for the loans. Contracts have now been signed with six companies covering loans amounting to $96,140,000 of the $199,607,800 which had been allotted, and others were expected to be signed this week, while the Van Sweringen lines announced the placing of some of the largest equipment orders for several years.

The Chicago, Milwaukee, St. Paul & Pacific has applied to the Interstate Commerce Commission for the necessary authorizations for a loan of $5,720,000 for the purchase of equipment, for which no allotment had yet been announced by the P. W. A., and also for another loan of $2,917,383 to take the place of its previous application for $1,818,750 for rails and fastenings which had been withdrawn. The company applied for authority to assume obligation and liability in respect of equipment trust certificates for 25 all-steel baggage-express cars at an estimated cost of $456,000; 50 all-steel passenger coaches, equipped for air-conditioning, $1,260,000; and 30 high-speed 4-8-4 type locomotives, $4,004,000. The additional loan of $2,917,383 for which application was filed with the P. W. A. on January 24 is for the purchase of 20,000 tons of rails, together with fastenings and accessories, $2,066,852; strengthening bridges and lengthening turntables and engine stalls to accommodate the new locomotives, $600,000; air-conditioning 22 dining and lounge cars, $136,000; and the purchase of 300 Evans auto-loaders, $114,531. The previous application had been for the purchase of 50,000 tons of rails.

Tabulation of the Van Sweringen Lines Orders for 12,725 Freight Cars

(All of 50 tons capacity except the 125 flat cars of 70 tons capacity and the 100 furniture cars of 40 tons capacity ordered by the Erie.)

Chesapeake & Ohio

Number Ordered	Type	Builder
2,250	Hopper	General American
1,150	Hopper	Standard Steel
1,000	Gondola	Amer. Car & Fdy.
850	Hopper	Amer. Car & Fdy.
50	Auto	Amer. Car & Fdy.
750	Hopper	Ralston
650	Box	Pullman
500	Hopper	Pressed Steel
500	Hopper	Canton
100	Furniture	Mount Vernon

Erie

Number Ordered	Type	Builder
500	Box	Amer. Car & Fdy.
350	Auto (with loaders)	Amer. Car & Fdy.
150	Auto	Amer. Car & Fdy.
750	Hopper	Standard Steel
750	Hopper	Pressed Steel
750	Hopper	Greenville
250	Hopper	Ryan Car Co.
125	Flat	Ryan Car Co.
100	Furniture	Magor

New York, Chicago & St. Louis

Number Ordered	Type	Builder
675	Gondola	Bethlehem
500	Box	Pullman
25	Flat	Ryan Car Co.

Tabulation of the Van Sweringen Lines Orders for 159 Passenger Cars

Chesapeake & Ohio

Number Ordered	Type	Builder
15	Coaches	St. Louis Car
11	Mail & Express	St. Louis Car

Erie

Number Ordered	Type	Builder
50	Suburban coaches	Pullman
50	Semi-suburban and through coaches	Amer. Car & Fdy.
25	Suburban coaches	Pressed Steel

New York, Chicago & St. Louis

Number Ordered	Type	Builder
5	Coaches	Pullman
2	Air-conditioned coaches	Pullman
1	Mail & Express	St. Louis Car

The Chesapeake & Ohio has announced the placing of orders for new cars and locomotives as follows: 1,000 fifty-ton high-side gondolas, 50 fifty-ton automobile cars and 850 fifty-ton hopper cars from the American Car & Foundry Company; 650 fifty-ton box cars from the Pullman Car & Manufacturing Corporation; 1,150 fifty-ton hopper cars from the Standard Steel Car Corporation; 500 fifty-ton hopper cars from the Pressed Steel Car Company; 2,250 fifty-ton hopper cars from the General American Car Company; 750 fifty-ton hopper cars from the Ralston Steel Car Company; 500 fifty-ton hopper cars from the Canton Car Company; 100 fifty-ton furniture cars from the Mt. Vernon Car Company; and 15 coaches and 11 mail and express cars from the St. Louis Car Company.

The New York, Chicago & St. Louis has ordered 500 fifty-ton box cars from the Pullman Car & Manufacturing Corporation; 675 fifty-ton low-side gondolas from the Bethlehem Steel Company; 25 fifty-ton flat cars from the Ryan Car Company; 7 coaches from the Pullman Car & Manufacturing Company; 1 mail and express car from the St. Louis Car Company; 15 2-8-4 type locomotives and tenders from the American Locomotive Company; and 5 0-8-0 locomotives and tenders and 20 extra locomotive tenders from the Lima Locomotive Works.

The Erie has ordered 500 fifty-ton box cars, 350 fifty-ton auto cars with loaders and 150 fifty-ton auto cars from the American Car & Foundry Company; 750 fifty-ton hopper cars from the Standard Steel Car Corporation; 750 fifty-ton hopper cars from the Pressed Steel Car Company; 750 fifty-ton hopper cars from the Greenville Steel Car Company; 250 fifty-ton hopper cars and 125 seventy-ton flat cars from the Ryan Car Company; 100 forty-ton furniture cars from the Magor Car Company; 50 suburban coaches from the Pullman Car & Manufacturing Corporation; 50 semi-suburban and through coaches from the American Car & Foundry Company; 25 suburban coaches from Pressed Steel Car Company.

The contract covering the $12,000,000 loan to the Southern Pacific, which was signed on February 1 by Administrator Ickes and A. D. McDonald, president of the company, following allotment of the amount by the P. W. A. on December 28, was the first to be signed including an amount for the purchase of rails, although several allotments have been made for that purpose. The work to be done with the proceeds of this S. P. loan includes the laying of 40,000 tons of rail, which has since been ordered, together with the necessary fastenings.

It is understood that the completion of other loans for the purchase of rails has been delayed not only because the roads do not want to lay the rails immediately, but also because the administration, after much negotiation, has required collateral behind the promissory notes to be given by the railroads for rail purchases, although it was originally understood that such loans would be made on the general credit of the railroads. The Chicago & North Western, which originally applied for a loan for 65,000 tons of rails and 18,000 tons of fastenings, and which was allotted $3,500,000 for that purpose, has since reduced its application to $1,400,000. With its application to the Interstate Commerce Commission for authority to issue 4 per cent registered 10-year serial notes for the amount there was attached a copy of resolutions adopted by the board of directors authorizing the president to borrow $6,000,000. However, a copy of a later resolution, dated January 10, authorizing the reduced amount, stated that it had been represented to the board that the P. W. A. would loan funds on 10-year notes without collateral security but that it was informed that the administration had modified its former position and is now insisting on collateral security as well as a yearly amortization of the loan beginning with the third year. As collateral for the 10-year notes the company offered 500 shares of common stock and $1,350,000 of bonds of a subsidiary company.

Execution of contracts for the loan of $1,400,000 to the Chicago & North Western and that for $240,000 to the Chicago & Eastern Illinois was announced on February 6 by Public Works Administrator Harold L. Ickes. Both were among the roads included in the blanket allotment of

$41,000,000 previously made to finance the purchase of rails and fastenings.

The loan to the North Western will enable it to purchase 26,514 tons of new rail, 1,460 tons of standard rail joints, 1,066 pairs of insulated joints, and 180 sets of compromise joints, 4,000 tons of tie plates, 730 tons of track spikes, 181 tons of track bolts, 175,000 nutlocks, 320,000 rail anchors, 100 switches and 44,000 rail bonds.

The C. & E. I. will purchase 4,000 tons of rail, 1,000 tons of tie plates, 66 tons of track spikes, 4,841 ordinary rail joints, 142 insulated joints, 50 compromise joints, 69,584 rail anchors, 33 tons of track bolts and nuts, 36,000 nutlocks, 18 spring frog switches and 15 manually operated switches, and 30 guard rails.

The P. W. A. has approved a loan of $2,018,000 to the Boston & Maine for the purchase of 30,000 tons of rails and one of $2,050,000 to the Erie for rails, out of the general allotment of $41,000,000.

Nearly 3,000 railroad shopmen were to be employed this week on work being done by the New York, New Haven & Hartford, the Pennsylvania and the Lehigh Valley with loans from the Public Works Administration, according to press statement issued by the latter. The Lehigh Valley has put 1,000 shopmen back on a five-day week schedule at Sayre and Packerton, Pa., with a loan of $2,000,000 for repairing 2,600 box and coal cars. These men had been working only two days a week since December 1. The repair work will provide approximately 929,000 man-hours of employment for them, and 720,000 additional man-hours of employment for men hired by industries manufacturing the materials to be used, according to information received from C. E. Hildum, vice-president.

The 700 shopmen employed by the New Haven are at work on the job of rebuilding passenger and freight cars, and are being paid from a $3,500,000 loan made by the P. W. A.

The Pennsylvania was to put a total of 1,200 men to work this week in its shops at Altoona, its Enola shops, and its Pitcairn shops.

Vice President Hildum of the Lehigh Valley wrote to Frank C. Wright, director of the division of transportation loans of the P. W. A., saying: "We are all very greatly pleased over the result, not only for the reason that we are enabled by this loan to carry on repair work which is necessary to the operation of the railroad, but also because it gives our men an opportunity to work full time after a considerable period of short working hours."

Employees of the Southern Pacific will receive 9,819,870 man-hours of additional employment this year as a direct result of the loan to that company it is estimated; and at least twice as many man-hours of indirect and industrial employment will be created by production and transportation of materials to be used by the Southern Pacific forces. The entire cost of the work to be done is estimated by the company at $12,970,735; of which $4,917,360 will be paid to employees working in its own shops and on its right of way, and $8,053,375 will be spent for materials.

The Southern Pacific will purchase and lay 40,000 tons of new rail and 1,820,000 cross-ties; and rebuild, repair and modernize 748 locomotives, 3,811 freight cars and 406 passenger train cars in its own shops. Many bridges, trestles and culverts also will be renewed and repaired.

Among the materials to be purchased for tracklaying in addition to the 40,000 tons of rail are 3,500 tons of joints, 460 tons of bolts and nuts, 1,258,800 tie-plates and 1,280 tons of track spikes, 800,000 anti-creepers, 167,000 gage plates and 1,820,000 cross ties. These materials are estimated to cost $4,473,905.

Steel shapes, timbers, stone and other materials for repairing and renewing bridges, trestles and culverts are estimated to cost $803,920, while the materials and equipment necessary for repairing and rebuilding locomotives and cars will cost $2,775,550.

The entire $12,000,000 will be spent this year. In anticipation of the signing of the contract and obtaining the required approval of the Interstate Commerce Commission the management has pressed forward with plans for the work to be done, so that it could get under way as soon as those formalities were disposed of.

Mr. Wright received a telegram from Hale Holden, chairman of the Southern Pacific, telling of the preliminary progress that has been made. He said the loan had been made as a substantial contribution to the President's re-employment program; and as all of this money was to be expended at points along the lines, "it will substantially improve employment conditions of our forces and involve also the purchase of large quantities of material for track work and repair of equipment."

Approval by Interstate Commerce Commission is expected at an early date.

Mr. Holden also expressed appreciation "for the prompt and diligent consideration given us during the negotiations which have now culminated in the final execution of the contract."

LOCOMOTIVES

THE CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC is asking for prices on 30 locomotives, preliminary to seeking a loan from the Public Works Administration.

THE NEW YORK, CHICAGO & ST. LOUIS has ordered 15 freight locomotives of the 2-8-4 type from the American Locomotive Company. Inquiry for this equipment was reported in the *Railway Age* of December 23, 1933.

THE NATIONAL RAILWAYS OF MEXICO have ordered two 2-6-6-2 simple Mallet type locomotives from the American Locomotive Company. These locomotives, weighing 206,000 lb., will have 15-in. by 22-in. cylinders, a steam pressure of 210 lb., and maximum tractive effort of 41,100 lb.

PASSENGER CARS

N. & W. Plans $1,000,000 Expenditure on Passenger Service Improvements

Co-incident with the Norfolk & Western's recent announcement that it had placed with the Bethlehem Steel Company an order for 10 all-steel coaches and eight combination passenger and baggage cars, came the further revelation of that road's plans for air-conditioning and other passenger service improvements which, together with the cost of the new cars, will involve an expenditure of approximately $1,000,000. With the consummation of this improvement program, the principal N. & W. passenger trains will be completely air-conditioned while all of its passenger trains, including those assigned to branch-line services, will be completely equipped with all-steel cars.

The air-conditioning plans contemplate that all of the 43 N. & W. cars assigned to the "Pocahontas" and the "Cavalier" will be so equipped; also, the Pullman Company will air-condition the 19 Pullman cars assigned to these trains. In addition, the new coaches and combination cars will be fitted with the latest modern improvements and six cars of the present N. & W. dining-car fleet will be redecorated. The new cars will have a length over-all of 84 ft., 2¾ in., four ft. longer than N. & W. coaches now in use. They will have women's and men's lounges, deep-cushioned, double-spring, rotating seats, indirect lighting and other conveniences. The coaches will have a seating capacity of 60 passengers—44 in the main body of the car, six in the women's lounge and ten in the men's lounge. The combination passenger and baggage cars, with a seating capacity of 29, will be similarly equipped.

FREIGHT CARS

PUBLIC WORKS ADMINISTRATION LOANS BRING ORDERS FOR EQUIPMENT AND EMPLOYMENT.—See this item, with its tables of freight and passenger car orders, elsewhere in these Equipment and Supplies columns.

IRON AND STEEL

THE SOUTHERN PACIFIC has ordered 40,000 tons of rails, dividing the order among the United States Steel Corporation, the Colorado Fuel & Iron Co., and the Bethlehem Steel Company.

MISCELLANEOUS

THE BANGOR & AROOSTOOK has ordered one spreader ditcher from the O. F. Jordan Company, East Chicago, Ind.

THE PENNSYLVANIA has placed orders with the Westinghouse Air Brake Company, Wilmerding, Pa., for 7,000 complete sets of the new Schedule "AB" freight car air brake equipment to be used on the 7,000 freight cars to be built by the railroad as part of its recently announced improvement and employment program, financed with a Public Works Administration loan. The "AB" freight brake equipment was recently adopted by the American Railway Association. This is the second large order received by the Westinghouse company from the Pennsylvania, which had tested the "AB" brake on its own lines. The orders will call for a considerable increase in the number of Westinghouse employees at the Wilmerding works and other plants.

Supply Trade

A. G. Pratt, president and a director of **The Babcock & Wilcox Company,** has been elected a member of the board of directors of the **Worthington Pump & Machinery Corporation,** Harrison, N. J.

A. B. Clark has been appointed general traffic manager of the operating companies of the **Union Carbide & Carbon Corporation,** New York, succeeding the late **Herbert Thompson.** Mr. Clark has been with the corporation 17 years.

The Howe Scale Company, Rutland, Vt., has moved its New York office, warehouse and repair shop to the Port Authority Commerce building, 111 Eighth avenue. **E. P. Vroome** is manager and **Harry M. Roeser** is mechanical engineer.

The Air Reduction Company, Inc., on January 1, exercised its option on the balance of the capital stock of the **Wilson Welder & Metals Company** of North Bergen, N. J. Air Reduction thus becomes the first of the oxyacetylene welding companies to own a 100 per cent interest in an electric welding organization.

The personnel of the **Union Steel Casting Company,** Pittsburgh, Pa., a subsidiary of **Blaw-Knox Company** is now as follows: **Jan R. Dunsford,** chairman of the board; **Frank Cordes,** president; **D. V. Sherlock,** manager; **William P. McGervey, Jr.,** assistant to the president. Sales are handled by **Robert H. Cunningham,** sales manager; **Walter H. Eisenbeis,** assistant sales manager; **John N. Critchlow** and **Grant W. Lillie.**

The Ingersoll-Rand Company, New York, has acquired the turbo-blower business of the **General Electric Company** and will consolidate it with its own turbo-blower department. The manufacturing equipment previously employed by General Electric is being moved to Ingersoll-Rand's Phillipsburg, N. J., plant, where all types and sizes will be manufactured. Sales activities will be directed from Ingersoll-Rand Company's general offices at 11 Broadway, New York.

H. S. Covey has voluntarily resigned his connection as secretary and sales manager of the **Cleveland Pneumatic Tool Company,** Cleveland, Ohio, after a continuous service of 33 years. He has also resigned as vice-president of the **Cleveland Pneumatic Tool Company of Canada, Ltd.,** and the **Cleveland Pneumatic Aerol Company. Albert F. Barner** has been elected secretary and **John DeMooy** sales manager to succeed Mr. Covey, both of whom have been associated with him during his many years in office.

American Brake Shoe & Foundry Company Annual Report

Consolidated net income of $986,692, after depreciation and federal income taxes, was reported by the American Brake Shoe & Foundry Company for the year ending December 31, 1933. This compares with 1932 net income of $257,379.

Preferred and common dividends totaling $1,030,160 were paid last year, as compared with $1,201,307 in 1932. The balance sheet shows total current assets of $9,078,527 including $2,421,499 in cash, as against current liabilities of $512,980. Thus, at the close of last year, cash alone, among the current assets, amounted to more than four times the total current liabilities.

Among the associated companies, the operations of the Ramapo Ajax Corporation resulted in a 1933 net loss of $219,944, as compared with a net loss of $399,709 in 1932. The National Bearing Metals Corporation reported a net profit of $358,083 in 1933 as compared with a 1932 loss of $162,302. The outstanding bonds of the Ramapo Ajax Corporation were reduced in 1933 by $45,000 to a total of $780,500 and those of the National Bearing Metals Corporation were reduced by $143,000 to a total of $1,419,500. The report calls attention to the inaccuracy of "some published analyses" which show these two bond issues as liabilities of the Brake Shoe Company. Neither issue is guaranteed by the latter as to principal or interest.

OBITUARY

I. Orville Wright, sales engineer and Baltimore (Md.) representative of The Symington Company, New York, died at the Memorial hospital in Baltimore on January 28 after an illness of several months. Mr. Wright was born at Union Bridge, Md., on March 12, 1872. He attended Quaker and private schools there until the age of 17, when he began work at the Western Maryland shops, in that town, spending four years as machinist apprentice. While learning his trade, he attended night school and studied mechanical drawing. He later qualified as a draughtsman for the Western Maryland. In this position he conceived the idea of an improved buffer and attachment for freight car couplings, and what was later to be known as the Farlow draft gear was invented. In 1899 he served with the South Baltimore Car Works as draughtsman. Shortly afterward, with the help of the late John H. Farlow, then general manager, he marketed his device, giving it the name of Farlow spring draft gear. The Farlow Draft Gear Company was absorbed in 1908 by The T. H. Symington Company. Mr. Wright continued with The T. H. Symington Company and subsequently its successor The Symington Company, up to the time of his death.

I. Orville Wright

James Hartness, until last year president of the Jones & Lamson Machine Company and formerly governor of Vermont, died at his home in Springfield, Vt., on February 3, after several months' illness. Mr. Hartness was born at Schenectady, N. Y., on September 3, 1861. He attended the public schools in Cleveland, Ohio, and was governor of Vermont for one term, 1921-23. While he never went to college, he received from the University of Vermont honorary degrees of doctor of laws and master of engineering, the former in 1910 and the latter in 1921, and from Yale, in 1914, the degree of master of arts. Mr. Hartness had patents for more than 100 inventions, among them the Hartness flat turret lathe, Hartness automatic die, and Hartness screw-thread comparator. He became associated with the Jones & Lamson Machine Company in 1890, serving consecutively as superintendent, manager and president. He was federal food administrator for Vermont during the World War and a member of the commission that represented the United States at the Inter-Allied Aircraft Standardization Conference at London and Paris. At the same time he was chairman of the Committee on Public Safety for Vermont. After his term as governor Mr. Hartness succeeded President Hoover as president of the American Engineering Council. He was a former president of the American Society of Mechanical Engineers, (1914), a fellow of the American Association for the Advancement of Science and a member of the British Institution of Mechanical Engineers. He had served also as vice-chairman of the Congressional Screw Thread Standardization Commission and was the author of "Machine Building for Profit" and "The Human Factor in Works Management." He was the recipient of the John Scott medal, given by the American Philosophical Society, for useful invention, and the Edward Longstreth Medal by the Franklin Institute of Philadelphia.

James Hartness

Financial

BOSTON & MAINE.—*P. W. A. Loan.*—The Interstate Commerce Commission has approved the proposed expenditure of $3,330,000, the proceeds of a loan from the Public Works Administration for repairs and improvements to locomotives and cars and the purchase of rails.

CHICAGO & NORTH WESTERN.—*Plans Sinking Funds for Bonds.*—This company will present to its directors a plan to create a sinking fund for the retirement of first and refunding mortgage bonds in line with the recent suggestion of President Roosevelt that railroads and utilities retire at least a part of outstanding fixed obligations through the establishment of sinking funds. The North Western's proposal contemplates no payment into sinking funds until after it has earned fixed charges. It provides that certain percentages of net income be paid into sinking funds, such percentage to increase with the amount of net income starting at three percent for the first $2,500,000 of net and equaling 20 per cent for any amount over $20,000,000. It is contemplated that the sinking funds be used not only to purchase first and refunding mortgage bonds, but also other bonds for the refunding of which the first and refunding mortgage authorizes the issuance of bonds. First and refunding bonds of the road now outstanding total $64,278,000.

CHICAGO & NORTH WESTERN.—*Notes.*—This company has applied to the Interstate Commerce Commission for authority to issue $1,400,000 of 4 per cent registered serial notes to the Public Works Administration for a loan for the purchase of 25,000 tons of rails and 7,000 tons of fastenings. The notes are to be secured by the pledge of 500 shares of common stock and $1,350,000 of 5 per cent first mortgage bonds of Escanaba, Iron Mountain & Western as collateral.

The company has also applied to the commission for authority to enter into a new lease of the property of the Escanaba, Iron Mountain & Western, of which it owns all the stock and bonds, stating that the P. W. A. desired a new lease in place of the informal arrangement that has existed.

CHICAGO, BURLINGTON & QUINCY.—*Abandonment.*—Examiner M. S. Jameson of the Interstate Commerce Commission has recommended in a proposed report that the commission authorize the abandonment of the branch line from Galesburg, Ill., to Fairview, 28.83 miles.

CHICAGO, BURLINGTON & QUINCY.—*Abandonment.*—Examiner M. S. Jameson of the Interstate Commerce Commission has recommended that the commission authorize the abandonment of the line between Yutan, Neb., and Allis, 4.87 miles.

CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC.—*Equipment Trust.*—This company has applied to the Interstate Commerce Commission for authority to assume obligation and liability in respect of $5,720,000 of 4 per cent. equipment trust certificates to be issued to the Public Works Administration for a loan for the purchase of cars and locomotives and also for the necessary authorization for another loan of $2,917,383 for the purchase of rails and other improvements in place of an earlier application for $1,818,750 for rails.

CHICAGO, ROCK ISLAND & PACIFIC.—*Maximum Salaries Fixed For Trustees.*—The Interstate Commerce Commission has issued an order approving the maximum compensation to be paid to the trustees in the reorganization proceedings pending in the federal court at Chicago as follows: James E. Gorman, $36,000 a year; Frank O. Lowden, $15,000 a year, and Joseph B. Fleming, $15,000 a year.

DELAWARE, LACKAWANNA & WESTERN.—*Abandonment.*—This company and the Sussex have applied to the Interstate Commerce Commission for authority to abandon the branch line of the latter from Branchville Junction, N. J., to Franklin, 9.16 miles.

DENVER & RIO GRANDE WESTERN.—*To Omit Interest Payment.*—Directors of this company have voted not to pay interest due February 1, on its general mortgage bonds. They pointed out, however, that improvement in traffic and earnings may occur sufficiently to justify the payment before the expiry of the three months' period of grace which must elapse before proceedings to enforce the mortgage may be taken.

INTERSTATE.—*Equipment Trust.*—This company has applied to the Interstate Commerce Commission for authority for the issuance of $250,000 of equipment trust certificates to the Public Works Administration in connection with a loan for the repair of 500 steel coal cars.

MIDLAND CONTINENTAL. — *Equipment Trust.*—This company has applied to the Interstate Commerce Commission for authority for an issue of $40,000 of equipment trust certificates for a loan from the P. W. A. for the purchase of an oil-electric locomotive.

MISSISSIPPI CENTRAL.—*Notes.*—The Interstate Commerce Commission has authorized this company to issue promissory notes not exceeding $100,000 to procure part of the funds necessary to pay interest.

MISSOURI PACIFIC.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon a branch line extending from Yates Center, Kans., southeasterly to West Junction, 5.1 miles.

NEW IBERIA & NORTHERN.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon a line extending northerly from a connection with the New Orleans, Texas & Mexico near Port Barre, La., to a connection with the Texas & Pacific, 1.5 miles.

NORTHERN PACIFIC.—*Expenditure For Locomotives Approved.*—The Interstate Commerce Commission has approved the expenditure of $1,220,000 to be borrowed from the Public Works Administration for the purchase of 10 passenger locomotives.

REYNOLDSVILLE & FALLS CREEK.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon its line from Falls Creek, Pa., to Soldier Run mine, 12 miles.

SOUTHERN PACIFIC.—*Acquisition of Phoenix & Eastern.*—The Interstate Commerce Commission has authorized the Southern Pacific Company to acquire 88.4 miles of railroad in Maricopa and Pinal counties, Ariz., from the Phoenix & Eastern. The railroad is not entirely continuous but all portions connect with the Arizona Eastern and the Southern Pacific Company owns the capital stock and is lessee of both that company and the Phoenix & Eastern.

Control of E. P. & S. W. of Texas.—The Interstate Commerce Commission has authorized the Southern Pacific Company to acquire control by lease of the El Paso & Southwestern of Texas and the El Paso & Northeastern, both of which it controls by stock ownership.

Acquisition of Porterville Northeastern.—The Interstate Commerce Commission has authorized the Southern Pacific Company to acquire outright the properties of the Porterville Northeastern which it now operates under lease and to assume liability for $300,000 of its first mortgage bonds.

SOUTHERN PACIFIC.—*Bonds.*—This company has applied to the Interstate Commerce Commission for authority to issue $12,000,000 of ten-year 4 per cent serial bonds, to be taken by the Public Works Administration in connection with a loan for rails, repairs to equipment, and other work, for which the contract was signed on February 1. The company also asked authority to pledge $21,594,000 of bonds of subsidiary companies as collateral for the ten-year bonds.

WINCHESTER & WARDENSVILLE.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon 16.8 miles of its line in West Virginia.

Average Prices of Stocks and of Bonds

	Feb. 6	Last week	Last year
Average price of 20 representative railway stocks..	49.57	47.71	25.93
Average price of 20 representative railway bonds..	77.39	75.55	58.13

Dividends Declared

Bangor & Aroostook.—Common, 63c; Preferred, 1¾ per cent, both payable April 2 to holders of record February 28.

Cincinnati Union Terminal.—4 Per Cent Preferred, $1.25, quarterly, payable April 1 to holders of record March 20.

Cleveland & Pittsburgh.—Reg. Guaranteed, 87½c, quarterly; Special Guaranteed, 50c, quarterly, both payable March 1 to holders of record February 10.

Green Bay & Western.—Capital Stock, 3 per cent; Class A Debentures, 3 per cent, both payable February 10 to holders of record February 8.

Northern R. R. of New Jersey.—4 Per Cent Guaranteed, $1.00, quarterly, payable March 1 to holders of record February 19.

Pittsburgh, Ft. Wayne & Chicago.—$1.75, quarterly; 7 Per Cent Preferred, $1.75, quarterly, both payable April 3 to holders of record March 10.

Pittsburgh, Youngstown & Ashtabula.—7 Per Cent Preferred, $1.75, quarterly, payable March 1 to holders of record February 20.

York.—Preferred, 62½c, quarterly, payable January 31 to holders of record January 26.

Railway Officers

EXECUTIVE

F. L. Thompson, vice-president, engineering, of the Illinois Central, with headquarters at Chicago, has had his jurisdiction extended to include the maintenance of way department. Heretofore jurisdiction over this department has been vested in the operating vice-president.

William Atwill, general manager of the Illinois Central, who has been appointed also vice-president, as noted in the *Railway Age* of February 3, was born in 1878 at Bothwell, Ont. He first entered railway service as a night operator on the Illinois Central at Rockford, Ill., and later served as a train dispatcher on the Chicago & North Western and the Grand Trunk, returning to the Illinois Central in 1901 as a train dispatcher at Dubuque, Iowa. Subsequently Mr. Atwill was advanced through the positions of chief dispatcher at Chero-

William Atwill

kee, Iowa, Ft. Dodge and Dubuque and in 1907 he was promoted to trainmaster at Ft. Dodge. Later he was transferred to Dubuque and in 1915 he was promoted to superintendent of the Minnesota division, with headquarters at the same point. In 1917, Mr. Atwill was transferred to the St. Louis division, with headquarters at Carbondale, Ill., where he remained until 1923, when he was promoted to general superintendent of the Southern Lines, with headquarters at New Orleans, La., being transferred to the Northern Lines at Chicago in 1925. He was further advanced to general manager in 1929 which position he continues to hold in addition to that of vice-president.

The following appointments and changes in title have been made among the officers of the Missouri Pacific: **E. M. Durham, Jr.,** senior vice-president, becomes senior executive assistant; **John Cannon,** vice-president and general manager, becomes chief operating officer; **C. E. Perkins,** vice-president, traffic, becomes chief traffic officer; **H. R. Safford,** vice-president, becomes executive assistant; **F. P. Johnson,** vice-president, becomes chief accounting and financial officer; **W. G. Vollmer,** assistant to president, becomes executive assistant; **W. J. Wright,** local treasurer, becomes treasurer for the trustees; **Thomas T. Railey** and **James M. Chaney,** become assistants to counsel for trustees; **J. A. Brown,** assistant vice-president, becomes assistant chief traffic officer; **P. J. Neff,** assistant to president and assistant vice-president, becomes assistant chief traffic officer; **Eugene Mock,** executive assistant to vice-president, becomes executive assistant to chief traffic officer; **W. A. Rambach,** assistant to vice-president, becomes assistant to chief traffic officer; and **C. McNay,** assistant to vice-president and general manager, becomes assistant to chief operating officer, all with headquarters at St. Louis, Mo.

In addition the following appointments have been made for the lines in Texas and Louisiana: **H. R. Safford,** executive vice-president, becomes senior executive assistant, Houston, Tex.; **E. M. Durham, Jr.,** vice-president, becomes executive assistant, St. Louis; and **J. E. Anderson,** assistant to executive vice-president, becomes assistant, executive department, Houston.

FINANCIAL, LEGAL AND ACCOUNTING

Adair Dyer, general attorney for the St. Louis Southwestern, has had his headquarters moved from St. Louis, Mo., to Tyler, Tex.

OPERATING

J. E. Byrnes, superintendent of terminals of the Illinois Terminal, with headquarters at St. Louis, Mo., has been appointed superintendent, steam lines, with headquarters at Alton, Ill., succeeding **H. I. Willett.**

M. L. McElheny has been appointed superintendent of the Central division of the Central Railroad Company of New Jersey, the Wharton & Northern and the Mount Hope Mineral R. R., with headquarters at Jersey City, N. J., succeeding **Raymond V. Reamer,** who died on January 6.

Robert E. Malone, who has been appointed superintendent of terminals at Kansas City, Mo., for the Kansas City Southern, as noted in the *Railway Age* of February 3, was born on February 6, 1885, at Ladue, Mo. He entered the service of the Kansas City Southern on July 2, 1917, as an engine foreman at Kansas City, being promoted to assistant yardmaster on January 3, 1921. Mr. Malone was further advanced to general yardmaster in 1930, which position he was holding at the time of his recent promotion to superintendent of terminals.

Henry H. Tisdale, who has been appointed superintendent of the Arizona division of the Atchison, Topeka & Santa Fe, as noted in the *Railway Age* of January 27, has been in railway service for more than 30 years. He was born on April 28, 1884, at St. Paul, Minn., and entered railway service in July, 1903, as a freight handler at the Hamline Transfer (Minn.) of the Great Northern. In November of the same year Mr. Tisdale was transferred to the general superintendent's office at St. Paul, advancing through various clerical positions to that of secretary to the general superintendent. Later he served in the same capacity in the office of the general superintendent of transportation at St. Paul and in the office of the general superintendent at Minot, N. D. In April, 1907, Mr. Tisdale went with the Santa Fe, where he served in the office of the general superintendent at Los Angeles, Cal., until July, 1918, when he was promoted to trainmaster on the Arizona division. He was transferred successively to the Albuquerque, Valley and Los Angeles divisions, and was located on the latter division at the time of his recent promotion to superintendent, with headquarters at Needles, Cal.

TRAFFIC

Claude T. Hunt has been appointed general eastern passenger agent of the Southern, with headquarters in New York City.

M. L. Craig has been appointed general agent at Atlanta, Ga., for the Texas & Pacific, to succeed **J. B. Shores,** who has been transferred to Shreveport, La., where he replaces **J. C. Webb,** who has been transferred to Marshall, Tex.

J. C. Weltch has been appointed general agent for the Chicago & Eastern Illinois, with headquarters at New Orleans, La., succeeding **N. C. Calvert,** who has been transferred to Dallas, Tex., where he replaces **Ashley Johnson,** who has resigned. **L. S. Staples** has been appointed assistant general agent at Dallas, Tex.

L. S. Nichols, chief of the tariff bureau of the Minneapolis & St. Louis, has been appointed assistant general freight agent with supervision over rates and divisions. His headquarters will be located as before at Minneapolis, Minn. The position of chief of the tariff bureau has been abolished.

Joseph P. McDonough has been appointed foreign freight agent for the Mobile & Ohio at St. Louis, Mo., a position which has been vacant for several years. Mr. McDonough was formerly connected with the M. & O., and more recently has been in the employ of the Munson Steamship Line.

E. P. Burke, general passenger agent for the Pullman Company, has been appointed passenger traffic manager, effective February 1, a position that has been vacant for several years. Mr. Burke's headquarters will be located as before at Chicago. **G. V. Kurz,** assistant general passenger agent, has been promoted to general passenger agent to succeed Mr. Burke.

William G. Brown, who has been appointed passenger traffic manager at Chicago for the Baltimore & Ohio, as noted in the *Railway Age* of January 27, has been connected with the B. & O. and its predecessor lines for 46 years. He was born in 1874 at Portland, Ind., and first entered railway service at the age of 14

with the Ohio & Mississippi (now part of the B. & O.). In subsequent years Mr. Brown was advanced through various capacities in the passenger traffic department of the Ohio & Mississippi and its successor lines, including the B. & O. During

William G. Brown

this period his activities included experience in ticket sales, advertising, rates and solicitation, and the positions he held included those of chief clerk in the passenger traffic department and chief rate clerk. In 1906, Mr. Brown was promoted to assistant general passenger agent at Cincinnati, Ohio, which position he held until 1920 when he was made general passenger agent at Chicago. He served in the latter capacity until his recent appointment as passenger traffic manager, effective February 1.

Daniel L. Moorman, whose appointment as general passenger agent of the Baltimore & Ohio at Washington, D. C., was reported in the *Railway Age* of January 27, page 179, was born on April 13, 1887, at Cincinnati, Ohio. He was educated in the grammar and high schools and at business college and entered railway

Harris & Ewing

Daniel L. Moorman

service with the Cincinnati, Hamilton & Dayton (now part of the B. & O.) in September, 1901, serving successively until November, 1905, as messenger and clerk in the operating and auditing departments of that road at Cincinnati. On the latter date he became assistant ticket agent at Hamilton, Ohio. From March, 1910, until November, 1913, he served as traveling passenger agent successively at Dayton and Toledo, Ohio. From November, 1913 to November, 1918, Mr. Moorman was division passenger agent at Detroit, Mich. During this period the Cincinnati, Hamilton & Dayton was absorbed by the Baltimore & Ohio and Mr. Moorman continued to serve as division passenger agent for the B. & O. He was appointed general baggage and milk agent of the latter road in November, 1918, serving in that position until March, 1920, when he became division passenger agent and assistant general passenger agent at Detroit. Mr. Moorman was appointed assistant general passenger agent at Washington, D. C., in January, 1929, the position he held at the time of his recent promotion.

ENGINEERING AND SIGNALING

The following changes have been made in the engineering department of the Pennsylvania: **C. J. Henry,** supervisor of track on the Eastern region, with headquarters at West Philadelphia, Pa., has been appointed division engineer, with headquarters in Philadelphia. **W. G. Trost,** supervisor of telegraph and signals at Harrington, Del., and **W. N. Spangler,** engineer telegraph and signals, with headquarters at Philadelphia, Pa., have been assigned to the office of the electrical engineer. **W. G. Salmonson,** assistant supervisor of telegraph and signals, with headquarters at Altoona, Pa., has been appointed acting supervisor telegraph and signals of the Delmarva division. **J. E. K. Krylow,** supervisor of telegraph and signals at Baltimore, Md., has been assigned to the Philadelphia Terminal division—electric traction. **John Mooney, Jr.,** acting supervisor of telegraph and signals at Altoona, Pa., has been transferred in the same capacity to the Baltimore division, and **A. H. Tasker,** supervisor of telegraph and signals, with headquarters at Philadelphia, has been transferred in the same position to the Middle division.

PURCHASES AND STORES

Lorne Kilmer, assistant general storekeeper of the Grand Trunk Western, has been promoted to general storekeeper, with headquarters at Battle Creek, Mich., succeeding **J. C. Jackson,** deceased.

Arthur J. Neault, assistant general purchasing agent of the Chicago & North Western, with headquarters at Chicago, has been appointed to succeed **John Ball,** assistant general purchasing agent, deceased. Mr. Neault, whose jurisdiction extends also over the Chicago, St. Paul, Minneapolis & Omaha, has been connected with the purchases and stores departments of the North Western for 27 years. He was born on April 11, 1882, at Marquette, Mich., and first entered railway service in 1900. During the next seven years he served in various capacities with the Duluth, South Shore & Atlantic, the Lake Superior & Ishpeming and the Illinois Central. In 1907 he entered the service of the Chicago & North Western as an accountant and later served successively as a stock clerk, foreman of the lumber yard and foreman of the scrap yard at the Chicago shops, storekeeper at Escanaba, Mich., and supervisor of reclamation, lumber buyer and assistant to the general

Arthur J. Neault

purchasing agent at Chicago. In 1929, Mr. Neault was advanced to assistant general purchasing agent at Chicago. In his most recent appointment, he succeeds the late John Ball, and in addition to having jurisdiction over the Omaha his duties have been broadened in other respects.

OBITUARY

J. C. Jackson, general storekeeper of the Grand Trunk Western, with headquarters at Battle Creek, Mich., died on January 22, following a lingering illness.

William A. Christian, formerly senior roadway engineer on federal valuation of railroads for the Interstate Commerce Commission, at Chicago, and recently civil engineer in the United States engineer's office at Chicago, died on February 4.

Henry S. Dean, superintendent of terminals for the Kansas City Southern, at Kansas City, Mo., who died on January 6, was born on November 25, 1875, at Elwood, Ill., and entered the service of the Kansas City Southern on December 18, 1910, as a yard brakeman at Kansas City. He was promoted to assistant yardmaster in February, 1911, and on October 8, 1912, he was further advanced to general yardmaster. Mr. Dean had been superintendent of terminals at Kansas City since October 1, 1917.

Orville P. Powell, assistant vice-president of the Pullman Company, with headquarters at Chicago, died on February 4 of heart disease at his home in that city. Mr. Powell had been connected with the Pullman Company for nearly 46 years. He was born on March 21, 1868, at Ottawa, Ill., and entered the service of the Pullman Company on February 23, 1888, as a Pullman conductor with headquarters at Jacksonville, Fla. Subsequent positions took him through the commissary, operating and purchasing departments, and on September 1, 1928, he was made assistant vice-president and general manager, holding this position until his death.

Tables of Revenues and Expenses of Railways begin on next left-hand page

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Revenues and Expenses of Railways

MONTH OF DECEMBER AND TWELVE MONTHS OF CALENDAR YEAR 1933

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	General	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income	Net ry. operating income, 1932
Akron, Canton & Youngstown	Dec	171	$113,207	$371	$125,803	$17,108	$9,173	$6,995	$40,115	$7,257	$80,648	64.1	$45,155	$38,634	$27,667	$13,056
	12 mos.	171	1,500,180	624	1,594,629	200,161	172,381	90,586	463,593	100,658	1,020,584	64.0	574,045	467,079	322,599	223,112
Alton	Dec.	950	653,355	144,577	962,061	77,169	139,160	41,216	405,319	24,161	698,464	72.6	263.597	474,240	346,193	35,450
	12 mos.	975	9,647,496	1,948,472	13,328,174	1,478,063	1,580,729	543,091	5,007,919	472,394	9,215,669	69.1	4,112,505	3,403,822	1,847,341	486,783
Alton & Southern	Dec.	31	.....	.....	84,823	7,305	5,320	5,537	29,237	4,019	51,418	60.62	33,405	30,456	26,476	14,940
	12 mos.	31	.....	.....	1,036,551	82,139	77,405	63,082	327,908	48,524	599,058	57.79	437,493	336,944	284,896	226,627
Atchison, Topeka & Santa Fe	Dec.	9,635	5,625,532	821,182	7,415,281	763,465	1,898,099	331,821	2,731,429	369,887	6,067,439	81.8	1,347,842	701,970	871,870	725,387
	12 mos.	9,714	78,292,238	11,381,362	98,462,856	12,308,735	23,228,607	3,678,012	33,598,721	4,402,066	77,146,026	78.4	21,316,830	11,388,889	12,705,559	16,026,699
Gulf, Colorado & Santa Fe	Dec.	1,927	980,835	61,290	1,123,061	130,566	251,802	50,268	396,611	62,721	890,428	79.3	232,633	164,397	86,600	325,733
	12 mos.	1,948	11,371,775	527,962	12,742,081	2,032,702	2,877,191	589,090	4,546,044	767,223	10,798,013	84.7	1,944,068	955,082	—85.154	1,265,684
Panhandle & Santa Fe	Dec.	1,878	647,151	33,634	735,786	75,052	156,521	18,652	212,069	32,784	494,265	67.2	241,521	192,215	111,675	173,151
	12 mos.	1,878	7,762,931	292,752	8,621,500	1,076,491	1,743,475	215,279	2,452,049	372,904	5,859,279	68.0	2,762,221	2,231,224	1,341,355	367,411
Atlanta & West Point	Dec	93	66,572	17,247	103,786	17,178	26,247	6,357	43,261	7,164	102,235	98.5	1,551	—8,278	—23,088	—18,383
	12 mos.	93	916,001	172,726	1,280,053	235,377	279,538	81,066	557,916	80,573	1,258,297	98.3	21,756	—67,625	—231,983	—323,419
Western of Alabama	Dec.	133	76,452	17,679	109,971	19,596	31,732	6,265	40,222	6,197	105,694	96.1	4,277	—3,414	4,152	23,717
	12 mos.	133	926,473	183,189	1,246,673	260,320	343,311	80,970	491,090	78,606	1,273,673	102.2	—27,000	—134,115	—84,879	—151,163
Atlanta, Birmingham & Coast	Dec.	639	187,535	6,380	221,545	12,996	54,291	20,384	102,102	14,782	214,156	96.7	7,389	—3,280	—16,191	—42,136
	12 mos.	639	2,218,031	55,940	2,604,544	433,370	537,061	230,421	1,079,999	175,992	2,578,042	99.0	26,502	—129,593	—250.846	—852,921
Atlantic Coast Line	Dec.	5,144	2,483,204	355,832	3,258,944	282,970	705,396	121.112	1,206,449	128,704	2,475,493	76.0	783,451	666,238	562,912	546,032
	12 mos.	5,144	29,660,525	4,223,524	37,908,943	4,544,777	7,749,821	1,305,719	13,764,828	1,510,991	29,127,630	76.8	8,781,313	5,152,048	4,299,811	108,199
Charleston & Western Carolina	Dec.	342	145,240	943	150,291	24,225	21,605	4,821	51,161	5,305	107,117	71.3	43,174	36,809	40,889	19,292
	12 mos.	342	1,823,094	14,126	1,888,221	271,454	259,224	66,108	605,240	58,812	1,260,838	66.8	627,383	433,215	435.489	167,692
Baltimore & Ohio	Dec.	6,384	8,450,966	850,414	10,041,934	796,622	2,203,359	291,928	3,806,739	542,669	7,724,707	76.9	2,317,227	1,830,698	1,626,523	1,841,587
	12 mos.	6,401	113,380,296	9,798,466	131,792,253	10,939,855	24,011,165	4,026,271	43,771,782	6,545,184	90,369,700	68.6	41,422,553	33,232,973	28,849,201	21,973,398
Baltimore & Ohio Chic. Term	Dec.	80	.....	.....	234,655	48,584	42,155	2,330	166,877	11,403	277,030	118.1	—42,375	—70,052	—33,394	—64,735
	12 mos.	80	.....	.....	3,079,088	256,747	486,438	18,770	1,654,611	145,111	2,624,963	85.3	454,125	2,311	931,241	927,533
Staten Island Rapid Transit	Dec.	23	51,175	86,689	144,520	10,126	11,758	1,766	81,908	13,390	118,948	82.3	25,572	9,472	—8,237	—9,664
	12 mos.	23	608,142	1,014,247	1,711,804	94,110	154,955	19,998	915,876	148,598	1,333,537	77.9	378,267	204,692	12,675	—9,762
Bangor & Aroostook	Dec.	603	454,346	36,878	511,071	58,252	78,478	4,243	134,952	22,571	299,042	58.5	212,029	194,553	184,437	118,382
	12 mos.	610	5,364,739	211,451	5,805,511	902,177	996,080	52,486	1,289,201	278,573	3,526,442	60.7	2,279,069	1,760.346	1,741,500	1,465,499
Belt Ry. Co. of Chicago	Dec.	54	.....	.....	308,809	12,827	28,927	2,133	137,353	8,000	189,240	61.3	119,569	71,193	135,372	141,424
	12 mos.	54	.....	.....	4,027,325	261,998	371,510	29,191	1,730,335	105,267	2,498,301	62.0	1,529,024	997,210	1,672,155	1,367,921
Bessemer & Lake Erie	Dec.	225	353,145	809	363,651	54,898	169,418	10,684	119,007	33,272	387,261	106.5	—23,610	—57,806	—42,024	—211,446
	12 mos.	225	6,624,948	8,948	6,742,869	698,457	2,204,143	126,573	1,389,065	391,133	4,808,866	71.3	1,934,003	1,661,769	1,703,552	—1,118,701
Boston & Maine	Dec.	2,081	2,183,578	640,041	3,371,445	343,225	601,726	57.008	1,455,629	161,563	2,627,732	77.9	743,713	586,680	419,210	760,910
	12 mos.	2,081	29,024,190	6,595,142	41,877,370	4,884,206	6,554,891	700,936	16,146,334	2,012,911	30,389,876	72.6	11,487,494	8,922,779	7,068,315	7,366,344
Brooklyn Eastern Dist. Term	Dec.	11	60,775	.....	64,754	3,557	7,028	121	22,313	10,807	43,826	67.7	20,928	14,088	14,088	6,956
	12 mos.	11	904,664	.....	923,175	57,581	102,906	3,097	276,643	77,126	517,353	56.0	405,822	331,483	332.123	254,753
Burlington-Rock Island	Dec.	280	78,793	1,051	84,243	10,808	11,030	3,548	40,791	7,329	73,506	87.3	10,737	5,777	—6,491	—12,827
	12 mos.	280	898,075	12,375	959,678	122,320	120,751	37,889	445,722	85,352	811,665	84.6	148,013	89,804	—37,376	—109,283
Cambria & Indiana	Dec.	37	98,348	.....	98,541	2,740	37,518	365	12,743	9,354	62,720	63.64	35,821	19,316	87,655	103,404
	12 mos.	37	1,184,389	.....	1,186,843	97,205	463,356	4,533	142,066	94,908	802,068	67.58	384,775	195,612	949,124	842,451
Canadian Pacific Lines in Maine	Dec.	233	146,497	19,103	175,123	17,900	33,484	4,188	79,106	3.551	138,229	78.9	36,894	30,049	1,075	23,074
	12 mos.	233	1,286,145	178,829	1,583,487	318,210	302.254	50,808	663,903	44,211	1,379,381	87.1	204,106	123,250	—108,473	—350,791
Canadian Pacific Lines in Vermont	Dec.	85	42,385	12,771	67,036	13,358	15,420	1,837	53,421	2,328	86,364	128.8	—19,328	—23,745	—39,755	—42,726
	12 mos.	85	600,098	128,867	897,591	187,725	197,579	22,777	594,628	29,771	1,032,480	115.0	—134,889	—197,209	—397,753	—448,412
Central of Georgia	Dec.	1,935	692,405	88,537	923,052	97,661	238,863	46,015	396,583	67,825	849,879	92.1	73.173	67,713	31,089	—68,628
	12 mos.	1,935	9,812,554	994,919	12,129,645	1,417,876	2,668,084	573,063	4,849,628	809,020	10,356,850	85.4	1,772,795	975,802	633,313	—271,616
Central New Jersey	Dec.	689	1,832,160	358,196	2,339,187	127,614	573,200	44.731	957,634	90,082	1,807,021	77.3	532,166	125,188	37,786	133,515
	12 mos.	691	21,141,213	4,431,579	27,401,329	1,825,578	5,098,950	511,803	10,969,224	1,097,277	19,648,591	71.7	7,752,738	3,249,004	2,253,768	2,507,298
Central Vermont	Dec.	457	309,642	47,772	399,991	44,708	75,926	12.083	189,649	19,754	342,052	85.5	57,939	42,393	26,582	63,141
	12 mos.	457	4,048,157	439,263	5,008,079	792,113	980,430	165,189	2,194,360	240.235	4,372,655	87.3	635,424	445,845	328,421	211,470
Chesapeake & Ohio	Dec.	3,121	7,107,405	256,676	7,668,239	709,772	1,437,713	163.512	1,891,610	286,038	4,500,298	58.7	3,167,941	2,789,629	2,732,272	2,774,762
	12 mos.	3,144	99,409,330	2,554,758	105,969,522	11,180,783	18,581,663	1,955,873	23,146,854	3,323.583	58,326,085	55.0	47,643,437	38,051,388	36,967,128	32.502,269
Chicago & Eastern Illinois	Dec.	938	820,805	104,415	1,038,792	108,163	138,618	44,976	422,571	56,621	777,798	74.9	260,994	200,815	87.853	—64.961
	12 mos.	938	9,684,156	1,308,193	12,218,449	1,489,744	1,749,788	581,816	5,047,140	654,518	9,601.058	78.6	2,617,391	1,693,599	207,297	—1,283,337

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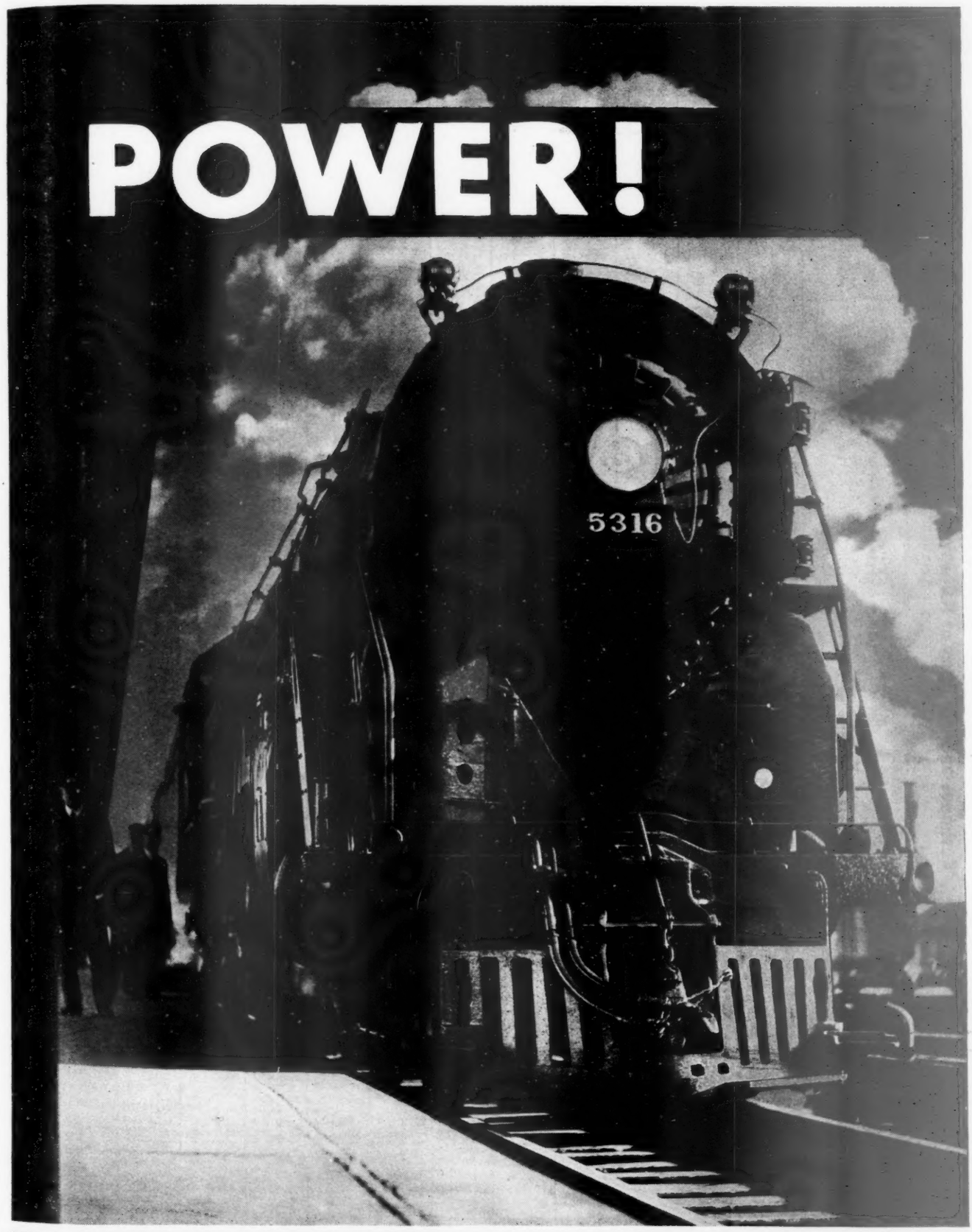

The Locomotive Booster supplies power you can get in no other way because it capitalizes idle weight and spare steam.

FRANKLIN RAILWAY SUPPLY COMPANY, INC., NEW YORK, CHICAGO, MONTREAL

Revenues and Expenses of Railways

MONTH OF DECEMBER AND TWELVE MONTHS OF CALENDAR YEAR 1933—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of—Way and structures	Equipment	Traffic	Transportation	General	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income	Net ry. operating income, 1932
Chicago & Illinois Midland	Dec.	131	$278,494	$1,315	$286,583	$25,078	$40,903	$18,687	$66,772	$17,126	$168,414	58.8	$118,169	$120,014	$124,290	$66,181
	12 mos.	131	2,925,588	12,288	3,026,349	308,947	520,402	190,822	720,322	186,944	1,929,671	63.8	1,096,678	957,992	1,003,023	231,512
Chicago & North Western	Dec.	8,442	3,948,076	687,423	5,334,066	589,735	1,079,314	156,293	2,294,327	259,086	4,407,498	82.6	926,568	444,894	183,369	374,581
	12 mos.	8,441	56,278,914	9,077,719	73,394,501	9,559,665	14,649,653	1,873,750	28,133,362	3,170,939	57,714,969	78.6	15,679,532	8,775,314	6,031,714	1,422,836
Chicago, Burlington & Quincy	Dec.	9,183	4,896,616	508,990	6,226,974	823,997	1,169,134	195,034	2,384,404	279,587	4,821,910	77.4	1,405,064	1,543,617	1,254,436	641,775
	12 mos.	9,237	63,319,234	6,722,104	78,496,975	8,561,684	12,140,500	2,450,820	27,374,245	3,390,388	54,361,599	69.3	24,135,376	17,196,224	13,491,225	9,592,497
Chicago Great Western	Dec.	1,499	1,000,225	45,485	1,134,939	55,827	143,088	51,307	384,932	47,598	676,308	59.6	458,631	437,728	267,817	—36,014
	12 mos.	1,499	13,099,407	536,205	14,575,180	1,820,822	1,971,249	598,398	5,382,575	568,355	10,322,113	70.8	4,253,067	3,572,524	1,280,914	403,778
Chicago, Indianapolis & Louisville	Dec.	644	447,644	53,691	575,582	25,699	134,803	23,386	204,667	22,394	415,832	72.2	159,750	123,900	37,811	101,019
	12 mos.	646	5,722,358	641,363	7,228,716	593,558	1,620,410	273,899	2,942,904	260,289	5,745,057	79.5	1,483,659	1,054,535	—21,083	—111,763
Chicago, Mil., St. Paul & Pacific	Dec.	11,203	5,048,055	449,267	6,257,169	625,775	1,453,294	200,941	2,658,710	243,799	5,214,913	83.3	1,042,256	705,096	279,904	287,475
	12 mos.	11,226	71,571,456	5,699,841	85,495,220	10,162,788	17,240,737	2,437,541	31,374,166	3,024,148	64,596,841	75.6	20,898,379	13,927,835	8,597,319	—518,116
Chicago River & Indiana	Dec.	20	.....	.....	370,841	11,427	33,627	1,528	111,767	10,215	168,564	45.5	202,277	173,768	227,652	258,695
	12 mos.	20	.....	.....	4,532,517	180,927	289,627	17,948	1,373,283	122,653	1,984,438	43.8	2,548,079	2,228,960	2,902,846	2,616,526
Chicago, Rock Island & Pacific	Dec.	7,611	3,647,466	494,035	4,695,615	474,870	1,065,815	171,638	2,052,805	273,824	4,099,126	87.3	596,489	350,329	86,185	247,561
	12 mos.	7,611	49,904,300	5,599,865	61,432,040	6,457,060	13,356,494	2,016,580	24,277,923	3,078,918	49,879,301	81.2	11,552,739	6,447,434	3,289,282	3,650,879
Chicago, Rock Island & Gulf	Dec.	721	289,424	18,072	299,255	35,156	46,450	14,491	106,229	16,639	221,221	73.9	78,034	52,834	—13,811	—27,604
	12 mos.	721	3,254,515	220,112	3,416,409	482,126	459,574	175,160	1,195,929	214,145	2,556,095	74.8	860,314	603,024	—291,715	397,350
Chic., St. Paul, Minn. & Omaha	Dec.	1,663	895,366	104,681	1,101,229	109,290	172,302	31,354	500,236	64,736	886,451	80.5	214,778	144,206	76,015	167,994
	12 mos.	1,702	12,064,162	1,375,949	14,527,600	1,484,302	2,195,377	379,804	6,268,811	784,432	11,206,511	77.1	3,321,089	2,376,996	1,537,544	—10,892
Cinn. Union Terminal	Dec.	45	.....	.....	4,363	6,382	5,915	.....	85,267	5,469	103,033	2,361.5	—98,670	—57,625	—56,339	.....
	12 mos.	45	.....	.....	45,374	73,590	50,340	.....	715,755	51,938	891,623	1,965.1	—846,249	—1,031,980	—1,020,386	.....
Clinchfield R. R.	Dec.	309	390,139	3,259	397,983	30,767	88,046	14,390	72,461	12,721	218,385	54.9	179,598	158,596	174,914	194,263
	12 mos.	309	4,761,869	24,463	4,842,426	410,210	1,089,712	182,564	840,256	157,940	2,680,682	55.4	2,161,744	1,640,497	1,894,874	857,618
Colorado & Southern	Dec.	1,029	451,664	22,098	526,742	90,870	89,178	11,718	188,310	31,203	411,580	78.1	115,162	26,203	12,783	9,105
	12 mos.	1,029	4,693,793	252,731	5,485,205	678,282	1,110,515	138,742	2,013,676	380,536	4,323,100	78.8	1,162,105	473,588	255,823	—65,581
Ft. Worth & Denver City	Dec.	804	408,395	39,671	527,615	33,260	69,871	15,547	146,732	31,054	296,449	56.2	231,166	198,216	171,784	187,062
	12 mos.	804	4,497,680	356,792	5,633,368	372,603	802,046	183,600	1,610,513	378,199	3,359,207	59.6	2,274,161	1,903,672	1,567,283	1,657,174
Columbus & Greenville	Dec.	167	61,826	7,612	74,867	19,321	11,256	3,282	31,936	11,851	77,568	103.6	—2,701	—13,167	—16,208	—29,670
	12 mos.	167	721,399	51,081	832,848	150,924	119,865	36,063	312,434	100,591	719,798	86.4	113,050	80,285	92,142	—81,955
Conemaugh & Black Lick	Dec.	20	19,863	.....	53,984	5,039	6,794	424	30,229	3,971	46,457	89.1	7,527	7,300	5,301	—778
	12 mos.	20	387,880	.....	689,710	75,009	110,543	4,543	302,230	35,941	528,266	76.6	161,444	158,457	171,308	—57,577
Delaware & Hudson	Dec.	848	1,679,128	100,436	1,883,145	245,120	513,376	45,134	759,735	135,403	1,704,595	90.5	178,550	114,513	134,839	30,933
	12 mos.	850	19,751,943	1,112,905	22,178,122	3,219,561	5,961,538	594,668	8,861,511	1,625,955	20,281,712	91.4	1,896,410	952,020	1,016,991	15,538
Delaware, Lackawanna & Western	Dec.	998	2,536,456	606,912	3,604,318	278,343	785,200	105,459	1,701,910	157,364	3,059,648	84.9	544,670	316,421	284,671	435,105
	12 mos.	998	31,160,921	6,482,867	43,339,279	3,782,238	8,773,596	1,291,449	18,771,948	1,816,138	34,777,127	80.2	8,562,152	3,837,043	3,480,300	4,011,954
Denver & Rio Grande Western	Dec.	2,471	1,348,731	64,504	1,498,709	76,105	282,519	43,799	484,691	71,868	962,399	64.2	536,310	370,873	360,718	375,059
	12 mos.	2,497	15,228,413	891,110	17,112,794	1,640,960	3,460,148	519,978	5,366,292	857,173	11,887,424	69.5	5,225,370	3,459,679	3,357,643	2,814,269
Denver & Salt Lake	Dec.	232	120,068	4,124	134,970	11,110	21,808	1,376	25,510	Cr. 5,649	53,338	39.5	81,632	59,821	63,082	137,294
	12 mos.	232	1,469,642	47,737	1,657,331	214,820	276,357	18,192	301,980	120,153	889,159	53.6	768,172	601,059	711,349	812,425
Detroit & Mackinac	Dec.	242	32,801	3,749	42,252	6,308	6,044	1,080	21,077	3,787	38,293	90.6	3,959	—700	—1,089	—3,795
	12 mos.	242	494,231	30,037	601,960	115,187	88,349	11,662	249,334	44,921	508,925	84.5	93,035	50,272	46,845	103,974
Detroit & Toledo Shore Line	Dec.	50	238,114	.....	239,346	10,477	14,330	7,054	43,255	6,513	81,629	34.1	157,717	149,958	105,110	74,756
	12 mos.	50	2,545,069	.....	2,562,417	223,376	235,863	79,970	644,254	80,288	1,263,655	49.3	1,298,762	1,057,217	570,755	368,857
Detroit Terminal	Dec.	19	.....	.....	49,840	5,251	8,010	1	43,955	2,559	59,776	119.9	—9,936	—13,270	—14,215	9,831
	12 mos.	19	.....	.....	650,246	64,249	90,122	11	349,982	30,686	535,050	82.3	115,196	—4,800	—9,725	—92,282
Detroit, Toledo & Ironton	Dec.	472	383,384	Dr. 53	395,555	34,969	58,454	9,499	101,961	14,565	217,522	55.0	178,033	148,950	130,943	56,573
	12 mos.	472	3,886,622	3,127	4,042,660	388,121	646,103	113,788	1,098,224	205,119	2,432,213	60.2	1,610,447	1,239,004	1,076,319	474,254
Duluth, Missabe & Northern	Dec.	563	58,257	3,629	78,673	77,527	415,069	3,396	128,448	37,607	662,044	841.5	—583,371	—595,666	—574,495	—333,814
	12 mos.	563	8,557,977	28,676	9,700,200	1,130,258	2,012,020	36,149	2,067,371	472,337	5,717,850	58.9	3,982,350	3,380,964	3,408,234	—2,524,823
Duluth, Winnipeg & Pacific	Dec.	178	54,263	2,900	59,345	12,310	15,061	Cr. 1,774	34,518	4,096	64,128	108.1	—4,783	—6,754	3,663	—9,358
	12 mos.	178	752,327	24,742	812,579	207,290	193,277	23,409	399,421	53,149	875,763	107.8	—63,184	—104,786	71,442	—53,065
Elgin, Joliet & Eastern	Dec.	446	677,360	.....	733,490	63,429	201,576	12,198	313,912	41,703	632,746	86.3	100,744	147,163	106,898	—59,746
	12 mos.	446	8,989,922	14	9,985,608	967,636	2,267,904	140,950	3,677,287	510,515	7,563,736	75.8	2,421,872	1,419,870	928,388	—1,016,847
Erie Railroad	Dec.	2,046	4,074,412	449,647	4,921,359	434,743	1,180,891	130,703	1,935,445	253,857	3,943,533	80.1	977,826	902,661	799,484	790,383
	12 mos.	2,046	52,998,328	5,155,112	63,156,702	5,640,583	13,593,090	1,580,578	22,841,069	2,837,141	46,575,076	73.7	16,581,626	13,015,573	11,656,455	8,663,538

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BE SURE
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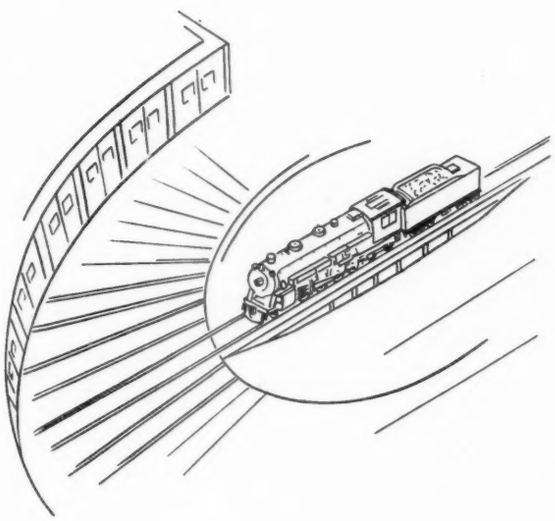
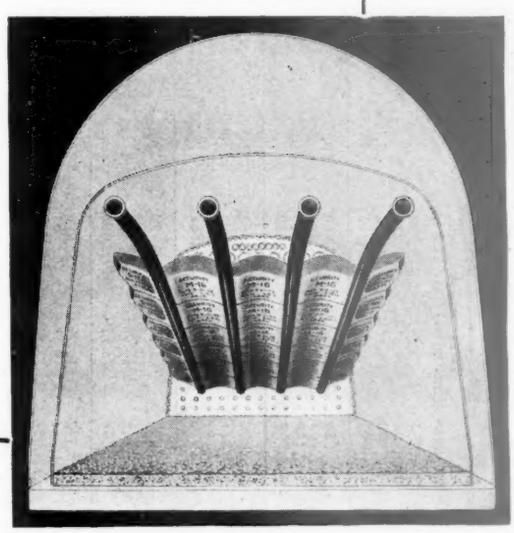
Is Missing





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INCORPORATED

Locomotive Combustion Specialists » » »

Revenues and Expenses of Railways

MONTH OF DECEMBER AND TWELVE MONTHS OF CALENDAR YEAR 1933—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of—Way and structures	Equipment	Traffic	Transportation	General	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income	Net ry. operating income, 1932
Chicago & Erie	Dec.	269	$604,551	$14,004	$668,267	$79,798	$91,320	$22,332	$190,272	$34,208	$417,667	62.5	$250,600	$222,644	—$40,007	$51,816
	12 mos.	269	8,010,398	319,904	8,929,614	937,410	1,113,450	269,489	2,332,828	393,062	5,037,456	56.4	3,892,158	3,476,733	866,693	166,808
New Jersey & New York	Dec.	45	13,870	57,990	74,167	1,572	23,178	1,401	53,124	4,553	83,828	113.0	—9,661	—7,800	—24,848	—39,724
	12 mos.	45	192,255	721,944	939,121	88,353	284,785	16,700	574,532	45,829	1,010,187	107.6	—71,066	—119,076	—334,357	—263,251
N. Y., Susquehanna & Western	Dec.	131	200,020	26,569	258,676	12,850	50,038	4,395	118,213	12,948	198,444	76.7	60,232	73,597	63,748	83,801
	12 mos.	131	2,652,967	318,804	3,160,853	305,898	609,720	51,954	1,262,375	132,937	2,362,861	74.8	797,992	521,648	369,721	475,251
Florida East Coast	Dec.	839	430,541	97,158	654,458	120,358	145,309	20,551	184,910	29,238	503,536	76.9	150,922	120,709	83,782	91,986
	12 mos.	839	4,467,872	1,381,893	6,693,545	1,287,840	1,564,765	233,157	1,931,930	480,888	5,538,937	82.8	1,154,608	294,239	—134,911	—281,776
Fort Smith & Western	Dec.	249	56,234	1,809	61,942	13,358	11,542	4,459	19,470	4,031	53,009	85.6	8,933	6,685	2,595	—6,525
	12 mos.	249	612,778	12,621	670,557	154,608	114,528	52,633	222,473	48,971	594,999	88.7	75,558	48,081	—4,895	—62,238
Galveston Wharf	Dec.	11	.....	.....	106,359	29,625	2,598	4,561	5,944	5,006	51,767	48.7	54,592	31,752	31,887	47,720
	12 mos.	11	.....	.....	1,136,308	348,887	39,308	40,480	227,899	61,897	763,315	67.2	372,993	138,890	139,699	322,168
Georgia R. R.	Dec.	329	170,905	15,647	213,093	5,729	57,572	15,236	98,533	11,921	189,321	88.8	23,772	13,387	22,241	4,212
	12 mos.	329	2,617,959	157,265	3,010,050	322,024	586,754	192,829	1,274,273	146,444	2,525,244	83.9	484,806	415,869	535,948	241,888
Georgia & Florida	Dec.	465	64,358	2,996	72,355	15,500	16,152	6,487	31,864	3,799	73,959	102.2	—1,604	—7,699	—9,383	3,057
	12 mos.	465	899,563	19,407	975,719	202,026	182,428	92,661	379,522	69,179	927,098	95.0	48,621	—14,723	—21,191	—200,009
Grand Trunk Western	Dec.	1,008	957,191	72,392	1,130,298	122,226	248,066	20,177	533,248	96,570	1,022,103	90.4	108,195	43,653	—114,884	—40,106
	12 mos.	1,005	13,099,134	751,854	14,958,766	2,394,721	3,334,146	408,621	6,610,522	943,601	13,724,723	91.8	1,234,043	359,236	—954,401	—2,031,097
Canadian Nat'l Lines in New Eng.	Dec.	172	63,612	7,058	78,856	12,532	65,310	880	36,266	11,563	124,319	157.6	—45,463	—54,521	—90,464	—72,267
	12 mos.	172	840,162	84,386	1,039,090	244,248	256,061	33,860	615,083	107,841	1,267,187	121.9	—228,097	—379,029	—815,522	—906,194
Great Northern	Dec.	8,361	3,542,526	329,743	4,427,173	261,127	774,062	162,370	1,831,083	181,663	3,270,911	73.9	1,156,262	871,298	830,037	422,653
	12 mos.	8,445	52,673,934	3,759,187	61,923,891	5,335,607	10,961,690	1,864,188	20,434,097	2,429,557	41,545,224	67.1	20,378,667	13,710,510	11,810,227	1,290,551
Green Bay & Western	Dec.	234	76,714	687	81,381	6,189	12,419	3,758	25,384	2,266	49,912	61.3	31,469	24,620	20,991	32,739
	12 mos.	234	1,040,573	10,995	1,094,300	237,533	162,189	52,829	440,000	30,538	922,556	84.3	171,744	105,087	86,972	93,033
Gulf & Ship Island	Dec.	307	73,086	6,871	90,618	13,644	12,700	1,925	47,686	4,647	80,602	88.9	10,016	3,857	—4,427	—24,664
	12 mos.	307	890,091	62,946	1,070,054	154,345	196,685	23,508	493,325	50,661	919,850	86.0	150,204	—37,952	—160,503	—280,280
Gulf, Mobile & Northern	Dec.	963	347,051	25,660	393,602	44,954	51,804	30,302	133,777	20,068	280,905	71.37	112,697	86,185	39,165	—25,773
	12 mos.	846	3,835,538	160,028	4,192,583	474,849	600,711	297,389	1,274,915	215,065	2,862,929	68.29	1,329,654	1,022,906	637,369	—51,566
Illinois Central	Dec.	5,011	5,312,196	656,919	6,635,509	399,096	1,188,048	161,375	2,284,334	331,304	4,381,374	66.0	2,254,135	1,908,133	1,962,734	1,323,062
	12 mos.	5,013	61,094,012	8,428,336	75,966,799	6,002,824	15,186,975	1,764,645	27,118,988	3,591,639	54,025,851	71.1	21,940,948	16,820,475	15,371,241	12,434,934
Yazoo & Mississippi Valley	Dec.	1,658	1,020,311	76,162	1,179,653	67,862	133,668	20,926	397,478	48,420	668,764	56.7	510,889	410,235	313,767	—87,488
	12 mos.	1,658	10,500,100	655,993	11,991,684	895,675	1,652,863	238,443	4,606,648	519,627	7,913,621	66.0	4,078,063	2,714,479	1,451,846	143,620
Illinois Central System	Dec.	6,670	6,332,507	733,081	7,815,162	466,958	1,321,716	182,301	2,681,812	379,724	5,050,138	64.6	2,765,024	2,318,368	2,276,501	1,235,574
	12 mos.	6,672	71,594,112	9,084,329	87,958,483	6,898,499	16,839,838	2,003,088	31,725,636	4,111,266	61,939,472	70.4	26,019,011	19,534,954	16,823,087	12,578,554
Illinois Terminal	Dec.	525	316,605	58,240	389,099	31,372	48,304	15,192	146,320	17,901	258,807	66.51	130,292	120,225	87,454	37,208
	12 mos.	538	4,000,278	585,795	4,749,837	559,997	593,869	171,807	1,684,016	200,233	3,202,283	67.42	1,547,554	1,259,805	883,962	580,768
Kansas City Southern	Dec.	783	497,507	16,253	596,820	67,992	123,668	39,972	207,912	64,411	504,982	84.6	91,838	58,369	50,953	58,737
	12 mos.	783	7,121,311	176,750	8,346,496	844,665	1,541,344	477,135	2,571,839	720,479	6,163,665	73.8	2,182,831	1,338,388	1,127,315	950,957
Texarkana & Ft. Smith	Dec.	98	71,967	1,413	84,718	12,325	12,377	5,410	25,701	8,115	64,296	75.9	20,422	13,576	—4,432	—19,781
	12 mos.	98	846,967	13,705	1,016,267	106,450	98,180	66,301	300,653	98,224	677,033	66.6	339,234	247,722	34,358	6,977
Kansas, Oklahoma & Gulf	Dec.	326	124,035	442	127,172	12,465	7,659	6,792	34,284	8,214	67,520	53.1	59,652	45,849	33,407	26,968
	12 mos.	326	1,740,116	3,835	1,775,837	224,248	134,745	81,409	415,673	92,508	939,739	52.9	836,098	630,766	453,228	410,276
Lake Superior & Ishpeming	Dec.	160	30,319	147	32,274	2,934	12,499	524	18,334	5,689	39,980	123.9	—7,706	—24,320	—25,439	—38,406
	12 mos.	160	1,627,456	1,007	1,871,784	244,945	171,720	6,426	334,191	66,853	824,113	44.0	1,047,671	774,886	762,909	—342,442
Lake Terminal	Dec.	12	.....	.....	26,527	2,659	5,202	.....	15,812	2,789	26,462	99.8	65	—2,804	—4,453	—3,419
	12 mos.	12	.....	.....	607,198	50,644	61,820	.....	237,152	31,445	381,061	62.8	226,137	188,528	190,643	62,039
Lehigh & Hudson River	Dec.	96	109,344	172	115,542	10,425	21,016	2,928	49,020	6,957	90,346	78.2	25,196	16,089	5,472	17,801
	12 mos.	96	1,360,430	2,947	1,443,351	151,077	230,220	38,256	486,375	76,825	982,743	68.1	460,608	327,933	181,337	146,472
Lehigh & New England	Dec.	227	209,460	368	216,311	27,224	50,745	5,181	85,686	12,375	181,210	83.8	35,101	64,772	75,854	137,954
	12 mos.	228	2,964,444	5,099	3,000,725	358,381	635,581	58,979	1,064,709	182,495	2,300,107	76.7	700,618	613,144	702,257	848,845
Lehigh Valley	Dec.	1,353	2,700,015	257,178	3,179,851	163,617	764,777	104,303	1,466,356	123,119	2,638,303	83.0	541,548	412,746	291,062	529,845
	12 mos.	1,358	32,837,093	2,413,546	38,177,450	2,925,096	8,192,684	1,265,849	16,200,397	1,455,901	30,232,067	79.2	7,945,383	5,594,901	4,107,569	3,210,368
Louisiana & Arkansas	Dec.	608	299,206	10,927	330,076	37,897	48,519	20,774	86,781	17,212	211,318	64.0	118,758	81,458	68,702	71,170
	12 mos.	608	3,744,220	109,014	4,124,940	553,442	707,744	241,816	985,606	204,820	2,691,879	65.3	1,433,061	1,086,228	919,772	793,034
Louisiana, Arkansas & Texas	Dec.	255	58,940	555	64,965	13,343	3,463	5,106	21,156	4,078	47,146	72.5	17,819	15,816	2,712	—15,459
	12 mos.	255	763,054	3,567	840,409	201,765	88,137	46,605	287,131	55,545	679,065	80.8	161,344	133,079	—1,843	—26,705

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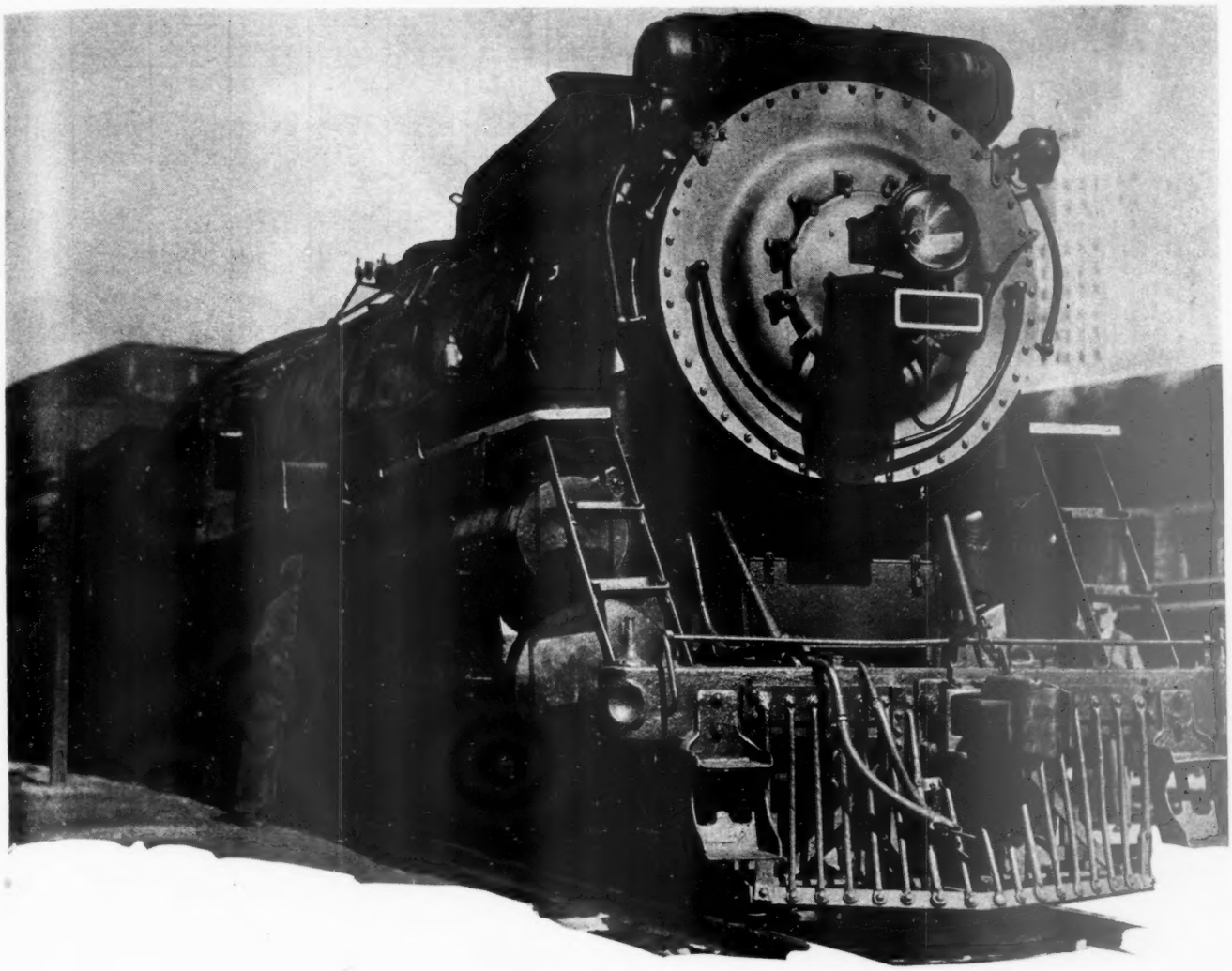

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Revenues and Expenses of Railways

MONTH OF DECEMBER AND TWELVE MONTHS OF CALENDAR YEAR 1933—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of: Way and structures	Equipment	Traffic	Transportation	General	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income	Net ry. operating income, 1932
Louisville & Nashville	Dec.	5,103	$4,224,074	$425,792	$5,121,248	$631,729	$1,108,225	$172,054	$1,815,616	$258,034	$4,019,260	78.5	$1,101,988	$1,018,158	$1,092,712	$1,993,628
	12 mos.	5,136	56,203,045	4,531,424	65,656,958	7,329,965	14,433,618	1,999,363	23,013,826	3,101,154	50,248,571	76.5	15,408,387	11,380,593	11,857,688	8,278,090
Maine Central	Dec.	1,046	681,575	84,610	859,240	98,631	175,749	8,579	343,148	38,110	664,117	77.3	195,123	151,567	98,707	146,877
	12 mos.	1,086	8,572,245	898,469	10,556,435	1,450,165	1,736,654	122,566	3,811,801	450,717	7,574,628	71.8	2,981,807	2,426,583	1,933,102	1,550,584
Midland Valley	Dec.	363	87,963	431	91,870	11,714	6,017	2,350	28,839	6,627	55,300	60.2	36,570	33,611	27,588	34,204
	12 mos.	363	1,303,006	5,183	1,358,308	194,179	106,093	27,092	346,968	78,113	746,683	55.0	611,625	501,751	414,103	432,058
Minneapolis & St. Louis	Dec.	1,627	545,799	18,044	604,771	49,478	133,835	22,125	308,392	31,326	544,546	90.0	60,225	68,195	54,949	—36,076
	12 mos.	1,627	7,032,497	171,492	7,673,398	932,427	1,547,272	289,209	3,583,067	400,872	6,747,285	87.9	926,113	559,232	281,705	—396,105
Minn., St. Saul & S. S. Marie	Dec.	4,304	1,673,682	116,394	1,949,106	250,194	301,679	61,483	764,217	125,112	1,504,369	77.2	444,737	363,034	223,290	—137,725
	12 mos.	4,319	19,352,385	1,117,156	22,293,596	3,008,887	4,131,085	729,758	8,742,675	1,334,750	17,993,870	80.7	4,299,726	2,583,307	1,016.850	—1,547,931
Duluth, South Shore & Atlantic	Dec.	559	151,131	19,758	184,192	18,160	27,930	4,232	65,268	7,358	122,851	66.7	61,341	44,292	38,514	—3,714
	12 mos.	562	1,654,053	122,363	1,963,106	334,511	376,019	60,848	792,611	70,179	1,635,436	83.3	327,670	109,393	58,390	—567,046
Spokane International	Dec.	163	24,709	1,931	31.523	663	3,474	1,888	19,692	4,079	29,767	94.4	1,756	—114	—1,875	—9,914
	12 mos.	163	376,971	18,167	443,030	112,279	53.318	23,709	228,456	49,353	466,994	105.4	—23,964	—71,488	—97,804	—135,274
Mississippi Central	Dec.	150	40,080	1,643	43,689	7,457	8,199	5,924	14,298	4,916	40,783	93.3	2,906	—27	—2,371	—9,478
	12 mos.	150	565,065	16,718	604,360	105,085	126,685	73,031	186,768	60,692	552,244	91.4	52,116	17,826	—20,494	—67,472
Missouri & North Arkansas	Dec.	364	68,214	1,272	76,549	18,002	12,081	2,071	28,566	2,964	63,239	82.6	13,310	11,301	2,269	—25,434
	12 mos.	364	807,941	12,968	894,780	168,581	123,929	51,066	313,601	52,944	709,208	79.3	185,572	157,583	53,062	—132,735
Missouri-Illinois	Dec.	213	70,427	329	72,447	15,568	7,444	2,986	25,053	5,249	56,344	77.8	16,103	13,842	8,928	—3,875
	12 mos.	213	825,593	4,200	850,168	165,302	122,473	30,460	284,265	64,007	666,421	78.4	183,747	112,006	32,807	16,438
Missouri-Kansas-Texas Lines	Dec.	3,293	1,819,332	163,760	2,227,396	203,520	232,261	148,874	760,764	143,826	1,504,919	67.6	722,477	718,884	527,176	463,845
	12 mos.	3,293	21,314,967	1,835,170	25,696,675	3,093,174	3,845,850	1,469,285	8,745,474	1,684,507	18,998,204	73.9	6,698,471	5,023,450	2,943,744	3,782,425
Missouri Pacific	Dec.	7,361	4,366,550	288,301	5,160,221	725,124	1,174,079	218,522	2,025,221	251,239	4,402,060	85.3	758,161	502,054	153,028	252,665
	12 mos.	7,406	58,278,977	3,692,444	67,953,779	8,537,801	13,891,090	2,515,062	24,318,847	3,036,445	52,447,443	77.2	15,506,336	11,405,804	6,923,548	8,511,961
Gulf Coast Lines	Dec.	1,768	703,932	37,098	795,213	111,298	118,092	40,469	229,556	44,997	538,080	67.66	257,133	230,103	166,103	134,654
	12 mos.	1,796	7,355,580	352,076	8,218,352	1,287,967	1,477,888	467,471	2,646,360	530,718	6,383,254	77.67	1,835,098	1,263,707	345,477	1,003,583
International-Great Northern	Dec.	1,159	742,951	60,646	896,506	108,899	162,408	27,210	345,543	44,578	697,362	77.79	199,144	167,551	41,280	—39,445
	12 mos.	1,159	10,663,419	623,843	12,287,759	1,555,652	2,093,970	311,560	4,293,982	520,612	8,870,288	72.19	3,417,471	2,991,564	1,518,751	449,451
San Antonio, Uvalde & Gulf	Dec.	316	77,847	2,768	86,009	16,415	9,371	4,168	28,115	4,154	62,223	72.3	23,786	18,272	—1,294	—12,780
	12 mos.	316	686,565	32,785	775,863	190,405	112,547	48,034	219,563	51,312	620,595	80.0	155,268	108,858	—124,865	—113,504
Mobile & Ohio	Dec.	1,201	584,130	29,383	661,918	87,671	171,876	35,243	275,446	35,240	605,636	91.5	56,282	76,049	16,883	—21,030
	12 mos.	1,215	7,438,544	262,439	8,161,996	1,034,886	1,869,916	457,938	3,029,286	434,564	6,828,676	83.7	1,333,320	921,471	177,587	—509,802
Monongahela	Dec.	177	322,530	1,068	325,886	23,656	22.283	346	70,633	3,556	120,476	37.0	205,410	186,693	104,767	84,590
	12 mos.	177	3,554,776	7,996	3,584,699	293,003	264,255	6,747	699,890	68,788	1,332,727	37.2	2,251,972	2,027,213	1,166,000	1,142,450
Monongahela Connecting	Dec.	6	.....	.....	77,505	8,879	16,945	52	37,808	2,823	66,507	85.8	10,998	4,949	4,937	—28,433
	12 mos.	6	.....	.....	803,347	126,246	194,428	578	405,884	32,393	759,529	94.5	43,818	—15,026	—20,519	—220,312
Montour	Dec.	57	98,978	.....	99,266	11,213	40,713	972	26,820	5,279	84,997	85.6	14,269	3,737	28,264	55,220
	12 mos.	57	1,652,177	.....	1,662,916	142,463	535,548	13,056	338,031	71,260	1,100,358	66.2	562,558	508,529	722,516	691,911
Nashville, Chattanooga & St. Louis	Dec.	1,203	763,162	68,473	951,750	139,795	250,909	51,525	395,174	52,986	894,625	94.0	57,125	92,426	65,811	149,617
	12 mos.	1,203	10,391,187	763,816	12,381,088	1,724,819	3,041,455	644,117	4,683,974	642,472	10,793,231	87.2	1,587,857	1,223,410	992,602	715,254
Nevada Northern	Dec.	165	16,160	1,210	21,485	8,705	3,347	731	7,205	1,677	21,665	100.8	—180	—4,796	1,692	—8,628
	12 mos.	165	212,554	13,295	270,868	105,325	45,306	8,669	85,153	34,024	278,477	102.8	—7,609	—84,355	—36,495	—34,223
Newburgh & South Shore	Dec.	6	.....	.....	20,071	5,018	19,032	.....	11,122	4,378	39,550	197.1	—19,479	—33,695	—29,289	8,127
	12 mos.	6	.....	.....	400,891	35,278	197,362	.....	210,788	52,791	496,219	123.8	—95,328	—203,259	—156,055	—138,741
New Orleans Terminal	Dec.	20	.....	.....	96,897	8,106	7,775	.....	27,498	967	44,346	45.8	52,551	43,642	46,311	62,772
	12 mos.	20	.....	.....	1,266,970	102,430	73,481	.....	320,928	12,127	508,966	40.2	758,004	620,907	546,099	540,817
New York Central	Dec.	11,414	14,887,489	5,015,181	22,875,719	2,168,029	5,243,532	506,660	8,566,755	1,077,546	17,918,330	78.3	4,957,389	3,489,568	2,233,396	2,213,104
	12 mos.	11,414	194,286,544	53,231,808	283,341,102	25,737,773	58,883,900	5,898,397	101,722,945	11,913,193	207,923,294	73.4	75,417,808	48,787,776	33,269,163	20,812,987
Indiana Harbor Belt	Dec.	120	.....	.....	630,057	44,027	68,321	3,277	274,330	16.628	422,662	67.1	207,395	158,079	112,299	127,991
	12 mos.	120	.....	.....	7,765,719	425,027	789,321	38,363	3,053,777	210,101	4,622,200	59.5	3,143,519	2,534,909	1,894,005	1,527,315
Pittsburgh & Lake Erie	Dec.	229	1,039,290	53,499	1,124.835	109,183	396,939	24,334	430,489	63,231	1,024.372	91.1	100,463	29,128	163,011	166,734
	12 mos.	231	13,580,502	531,637	14,582,837	1,178,995	4,941,342	285,912	4,842,204	711,899	11,972,709	82.1	2,610,128	1,526,433	2,906,119	1,647,097
New York, Chicago & St. Louis	Dec.	1,690	2,299,701	63,446	2,459,179	241,205	369,777	95,100	928.699	110,200	1,726,885	70.2	732,294	649,955	409,712	268,538
	12 mos.	1,690	28,541,586	938,311	30,647,506	2,999,054	4,652,729	1,144,768	10,581,804	1,354,044	20,734,958	67.7	9,912.548	8,264,648	5,216.887	2,141,153
N. Y., New Haven & Hartford	Dec.	2,067	2,970,468	2,099,431	5,836,815	692,719	1,026.754	72,325	2.211,298	263,579	4,407,892	75.5	1,428,923	1,116,603	615,424	943,363
	12 mos.	2,068	38,636,829	20,474,645	67,224,751	7,882,880	11,305,146	873,280	25,083,690	2,737,171	49,227,027	73.2	17,997,724	13,506,086	7,695,427	11,243,367

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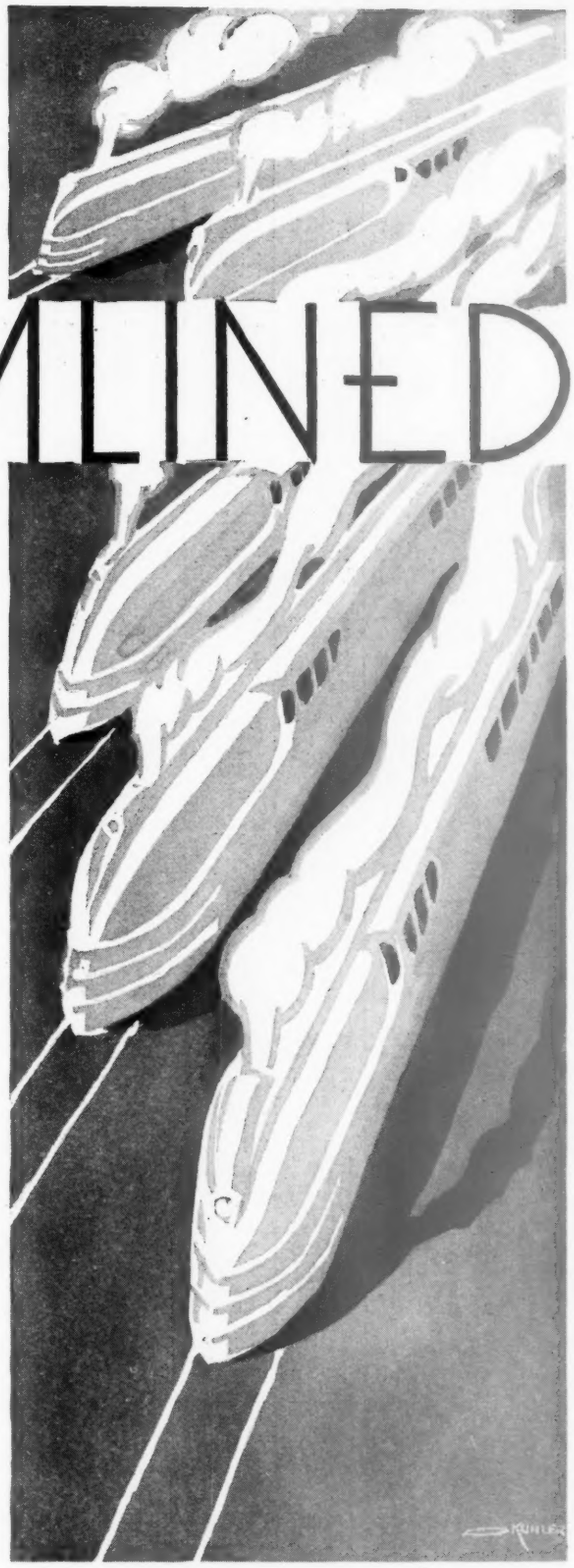

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Is it fair to yourselves or your stockholders to condemn the steam locomotive in general on the basis of what you are doing now with an obsolete main line locomotive far too heavy and costly in operation and maintenance for the service in which it is operating? If you have a sum of money to spend to improve a certain service, why not find out what the steam locomotive designer has to offer?

You might be surprised at the money you can save.

AMERICAN LOCOMOTIVE COMPANY

We are prepared to submit streamlined designs, steam or diesel powered as desired, to meet any or every demand of our railroads.

50 CHURCH STREET · NEW YORK · N.Y.

Revenues and Expenses of Railways

MONTH OF DECEMBER AND TWELVE MONTHS OF CALENDAR YEAR 1933—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of: Way and structures	Equipment	Traffic	Transportation	General	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income	Net ry. operating income, 1932
New York Connecting	Dec.	20	$185,776	.....	$194,687	$16,142	$8,125	.....	$28,291	$847	$53,405	27.4	$141,282	$110,226	$40,836	$143,944
	12 mos.	20	2,604,278	.....	2,730,165	156,056	90,179	.....	316,209	10,496	572,940	21.0	2,157,225	1,779,599	1,261,009	1,064,845
New York, Ontario & Western	Dec.	568	724,795	$25,155	823,727	77,576	122,047	$11,189	360,796	24,649	600,473	72.9	223,254	205,675	152,011	184,029
	12 mos.	568	8,194,333	494,740	9,644,523	1,127,817	1,659,942	138,684	3,736,807	285,550	6,978,679	72.4	2,665,844	2,226,127	1,708,812	1,860,232
Norfolk & Western	Dec.	2,184	5,329,340	149,117	5,681,372	379,191	1,190,288	106,341	1,280,072	194,616	3,162,346	55.7	2,519,026	2,128,821	2,274,740	2,251,556
	12 mos.	2,216	65,628,308	1,475,236	69,262,891	6,243,603	13,483,654	1,317,915	15,335,719	2,502,989	39,017,307	56.3	30,245,584	22,900,255	24,656,354	19,161,098
Norfolk Southern	Dec.	932	285,486	12,699	319,503	9,432	47,858	17,296	132,440	20,143	227,169	71.1	92,334	91,318	74,066	—10,144
	12 mos.	932	4,059,799	119,920	4,385,592	749,153	667,564	223,595	1,671,960	270,185	3,582,437	81.7	803,155	488,742	303,231	—270,501
Northern Pacific	Dec.	6,745	3,003,724	266,814	3,670,019	234,849	664,893	134,857	1,587,147	245,897	2,924,928	79.7	745,091	737,091	998,823	500,613
	12 mos.	6,740	40,224,391	3,208,871	47,578,677	5,180,413	10,877,086	1,731,035	17,630,188	2,975,290	38,993,492	82.0	8,585,185	2,678,086	5,975,973	1,990,389
Northwestern Pacific	Dec.	380	116,242	78,167	224,301	30,352	43,686	4,589	104,905	13,361	196,842	87.8	27,459	10,375	20,238	—67,277
	12 mos.	400	1,544,768	958,813	2,853,362	394,330	554,371	53,881	1,537,429	168,130	2,704,473	94.8	148,889	—89,337	—180,606	—346,714
Oklahoma City-Ada-Atoka	Dec.	132	19,120	336	21,107	5,091	1,354	617	10,250	1,378	18,690	88.5	2,417	24	—5,963	—13,295
	12 mos.	132	292,525	3,267	315,093	47,821	19,912	7,124	119,885	17,681	212,419	67.4	102,674	57,023	—21,665	—43,838
Pennsylvania Railroad	Dec.	10,549	17,717,331	4,675,112	25,060,089	1,855,709	5,000,216	561,976	10,150,280	1,288,898	19,197,887	76.6	5,862,202	4,540,194	3,680,625	2,207,797
	12 mos.	10,718	238,968,328	52,930,251	324,715,814	26,370,633	62,853,659	6,187,981	113,132,735	15,018,759	226,768,347	69.8	97,947,467	73,367,416	61,976,859	49,132,038
Long Island	Dec.	400	427,840	1,364,267	1,872,797	115,464	261,781	10,714	663,547	52,248	1,103,713	58.9	769,084	625,804	493,849	316,646
	12 mos.	400	5,709,175	17,145,203	24,068,582	1,683,285	3,299,329	153,893	9,606,256	640,924	15,385,988	63.9	8,682,594	6,323,815	4,230,658	5,045,925
Peoria & Pekin Union	Dec.	18	10,733	.....	79,955	12,834	7,803	2,063	39,029	6,847	68,576	85.8	11,379	29,771	51,547	12,247
	12 mos.	18	119,838	.....	917,673	130,644	83,381	22,524	405,928	82,153	724,630	79.0	193,043	40,993	295,041	219,564
Pere Marquette	Dec.	2,252	1,593,309	71,933	1,763,712	188,472	391,745	55,482	720,087	88,455	1,447,154	82.1	316,558	376,755	239,329	180,999
	12 mos.	2,296	20,024,253	691,597	21,947,295	2,704,843	5,025,937	672,352	8,387,749	1,058,841	17,892,720	81.5	4,054,575	2,969,731	1,724,456	325,472
Pittsburg & Shawmut	Dec.	102	57,939	423	58,857	8,956	19,341	1,369	18,017	4,138	51,821	88.1	7,036	6,779	12,889	14,242
	12 mos.	102	655,829	5,524	670,421	101,815	204,300	16,067	194,825	43,419	560,426	83.6	109,995	104,973	126,743	129,328
Pittsburgh & West Virginia	Dec.	138	169,765	2	179,980	13,528	40,916	11,953	40,853	13,602	127,749	71.0	52,231	29,002	48,429	71,057
	12 mos.	138	2,402,372	2	2,530,253	241,741	605,544	136,751	492,995	152,514	1,713,269	67.7	816,984	574,472	904,838	619,018
Pittsburg, Shawmut & Northern	Dec.	195	74,554	248	81,362	14,981	32,716	1,166	28,824	6,560	84,247	103.5	—2,885	—3,949	—7,666	—14,763
	12 mos.	195	928,558	2,275	989,451	175,619	221,483	15,041	329,992	78,285	820,420	82.9	169,031	142,934	90,624	—45,515
Reading	Dec.	1,461	3,626,366	286,650	4,148,467	232,474	787,524	69,834	1,593,817	190,261	2,890,256	69.7	1,258,211	1,077,012	1,096,936	1,084,946
	12 mos.	1,461	43,876,296	2,782,679	49,464,052	2,980,871	8,862,251	830,107	18,069,846	2,217,824	33,148,528	67.0	16,315,524	13,758,568	13,577,068	11,086,616
Penna.-Reading Seashore Lines	Dec.	496	228,743	106,229	356,952	55,231	58,744	9,370	321,329	23,403	468,932	131.4	—111,980	—174,983	—278,390	—63,631
	12 mos.	337	1,909,704	1,953,542	4,092,778	483,336	655,278	65,736	2,696,606	158,951	4,064,921	99.3	27,857	—728,367	—1,439,379	—569,205
Richmond, Fredericksburg & Potomac	Dec.	117	234,180	127,070	482,978	41,112	136,420	8,112	208,078	31,979	431,289	89.3	51,689	19,864	—10,858	158,814
	12 mos.	117	3,360,452	1,304,500	5,885,276	570,156	1,193,765	96,427	2,332,180	376,279	4,652,536	79.1	1,232,740	817,715	393,220	564 255
Rutland	Dec.	413	151,506	35,750	247,897	31.159	64,508	10,316	129,129	13,066	246,207	99.3	1,690	—12,005	20,388	15,976
	12 mos.	413	2,174,542	390,575	3,386,806	565,563	668,039	119,736	1,511,682	164,073	3,026,254	89.4	360,552	122,776	286,750	306,711
St. Louis-San Francisco	Dec.	5,249	2,481,077	234,107	3,014.054	500,967	783.246	100,342	1,127,004	143,510	2,661,052	88.3	353,002	148,512	126,484	64,653
	12 mos.	5,262	33,199,810	2,314,577	38,731,160	6,499,629	9,173,357	1,109,802	13,179,925	1,689,251	31,705.418	81.9	7,025,742	3,829,227	3,381,153	4,050,973
Fort Worth & Rio Grande	Dec.	233	26.285	1,809	33,334	12,841	10,581	2,858	19,957	3,805	49,140	147.4	—15,806	—19,646	—25,712	—38,338
	12 mos.	233	342,875	14,520	424,044	203,600	166,999	27,212	256,026	40,938	692,770	163.4	—268,726	—317,757	—393,536	—406,885
St. Louis, San Francisco & Texas	Dec.	262	75,115	1,119	78,807	20,726	18.198	4,872	38,156	6,935	92,434	117.3	—13,627	—17,812	—39,559	—52,269
	12 mos.	262	1,015,769	8,424	1,062,161	271,336	218,685	58,630	411,256	90,428	1,048,805	98.7	13,356	—34,691	—354,114	—449,275
St. Louis Southwestern Lines	Dec.	1,884	906.501	21,376	981,798	105,092	166,408	71,904	369,305	55,787	774,654	78.9	207.144	203,378	123,099	—12,483
	12 mos.	1,894	12,188,801	186,206	12,953,395	1,438,431	1,826,539	816,285	4,197,926	746,906	9,063,695	70.0	3,889,700	3,017,842	1,789,740	—186,791
San Diego & Arizona Eastern	Dec.	155	20,765	3,887	28,316	8,344	9,058	1,599	15,459	4,061	39,174	138.3	—10,858	—12,498	—9,876	—190,433
	12 mos.	155	349,786	50,730	424.549	104,200	104,531	21,068	186,688	52,107	475,442	112.0	—50,893	—80,766	—61,946	—472,342
Seaboard Air Line	Dec.	4,310	2,195,295	279,029	2,786,321	420,541	538,919	152,649	972,251	129,748	2,216,961	79.6	569,360	439,651	337,931	128.028
	12 mos.	4,356	26,040,603	2,383,789	31.549.557	4,858,112	6,301,163	1,541,245	11,344,891	1,537,353	25.810,072	81.8	5,739,485	3,525,763	2,622,093	208,830
Southern Ry.	Dec.	6,653	4,552,638	761,020	5,936,025	437,830	1,036,749	134,231	2,222,808	246,856	4,117,098	69.4	1,818,927	1,582,647	1,408,294	1,362,409
	12 mos.	6,653	62,393.191	7,132,620	76,148,103	8,212,016	13,605,609	1,714,739	26.880,877	2,955,910	53,705,409	70.5	22,442,694	16,873,451	15,015,944	4,406,269
Alabama Great Southern	Dec.	315	287,776	49,673	371,144	Cr. 865	79,868	10,415	125,197	14,496	231,022	62.2	140,122	127,919	132,618	88.048
	12 mos.	315	3,707,765	426,505	4,497,665	569,816	1,018,177	119,515	1,485,642	171,604	3,387,463	75.3	1,110,202	690,869	661,538	—125,808
Cinn., New Orleans & Tex Pac	Dec.	336	693,496	69,593	828,645	61,033	162,829	27,981	239,750	36,645	532,545	64.3	296,100	236,281	210,492	192,706
	12 mos.	336	10,243,402	705,748	11,622,730	1,184,450	2,133,538	279,437	2,965,887	438,104	7,050,143	60.7	4,572,587	3,672,366	3,354,223	1,737,111
Georgia Southern & Florida	Dec.	397	89,359	24,272	130,943	Dr. 6,208	28,423	1,580	64,877	2,121	92,736	70.8	38,207	42,075	50,748	49,408
	12 mos.	397	1,196,512	232,246	1,634,446	284,209	400,687	20,702	686,278	27,445	1,442,247	88.2	192,199	48,239	38,440	205,525

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RAILROAD CONDITIONS ARE ROUGH ON PIPE

BUT

TONCAN COPPER MOLYBDENUM IRON PIPE

HAS JUST THE QUALITIES FOR THIS SEVERE SERVICE

Either corrosion or vibration separately is tough on pipe but in train line service these two combine in their destructive action. » » » That is why pipe for railroad service must be selected with an eye to resisting both corrosion and vibration. » » » Fortunately Toncan Iron Pipe possesses both the desired qualities. » » » This alloy of copper, molybdenum and iron is second only to the stainless iron and steels among ferrous materials in resistance to corrosion. » » » In addition it has superior toughness and anti-fatigue qualities to the point where it is used successfully for staybolts —a far more exacting service. » » » Moreover, this resistance is uniform throughout the entire thickness of the metal, not confined to surface. The result is that Toncan Iron Pipe is economical in service throughout its longer, trouble-free life. » » » » » » » » » » » » »

REPUBLIC STEEL CORPORATION

GENERAL OFFICES YOUNGSTOWN, OHIO

TONCAN COPPER MOLYBDENUM IRON PIPE

Revenues and Expenses of Railways

MONTH OF DECEMBER AND TWELVE MONTHS OF CALENDAR YEAR 1933—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of: Way and structures	Equipment	Traffic	Transportation	General	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income	Net ry. operating income, 1932
New Orleans & Northeastern	Dec.	204	$131,339	$22,945	$168,808	$15,241	$11,598	$6,054	$67,379	$9,231	$110,787	65.6	$58,021	$37,910	$20,257	—$10,970
	12 mos.	204	1,607,463	195,288	1,949,879	292,831	373,370	64,982	727,102	106,620	1,580,276	81.0	369,603	13,864	—182,615	—415,740
Northern Alabama	Dec.	99	42,487	2,187	46,284	9,699	1,460	939	14,295	1,715	28,108	60.7	18,176	17,501	19.650	20,555
	12 mos.	99	496,291	15,955	530,818	108,113	16,235	12,103	169,362	20,313	326,114	61.4	204,704	156,124	8,708	—60,209
Southern Pacific	Dec.	8,982	5,711,691	1,352,472	8,007,590	969,638	1,386,183	302,178	2,992,142	505.865	6,311,395	78.8	1,696,195	1,253,279	1,125,492	103,275
	12 mos.	9,053	72,384,094	15,221,018	97,059,087	9,408,208	17,471,331	3,136,474	35,583,752	6,306,571	73,771,902	76.0	23,287,185	13,414,234	9,735,941	7,779,319
So. Pac. Steamship Lines	Dec.	....	239,751	5,656	254,631	10,255	78,397	16,883	231,569	19,165	356,269	139.9	—101,638	—102,241	—101,610	1,324
	12 mos.	....	3,796,035	141,884	4,128,228	152,237	1,139,513	192,737	2,881,090	240,124	4,605,701	111.6	—477,473	—489,039	—486,424	—830,076
Texas & New Orleans	Dec.	4,479	1,832,614	206,399	2,348,738	366,340	442,306	109,672	836,101	201,579	1,960,239	83.5	388,499	218,450	48,889	2,658
	12 mos.	4,505	22,853,038	2,350,744	28,673,646	4,057,139	5,852,775	1,330.690	10,145,194	2,490,850	23,996,548	83.7	4,677.098	1,979,739	—192,443	—1,343,061
Spokane, Portland & Seattle	Dec.	552	310,806	31,509	376,455	47,373	59,633	6,264	144,892	18,426	278,324	73.9	98,131	429,789	401,363	—60,565
	12 mos.	552	3,765,914	398.852	4,608,094	424,821	571,320	70,813	1,537,469	203,898	2,823,396	61.3	1,784,698	1,371,322	1,207,741	235,187
Tennessee Central	Dec.	287	139,233	5,316	154,835	22,252	21,104	4,531	59,200	10,406	117,409	75.8	37,426	32,952	17,129	35,702
	12 mos.	289	1,765,686	47,474	1,923,154	321,160	282,980	58,705	652,413	117,484	1,431,674	74.4	491,480	453.897	266,299	211,984
Term. R. R. Assn. of St. L.	Dec.	55	.....	.....	471,015	38,144	22,348	2,950	205,534	14,474	285,729	60.7	185,286	126,242	201,952	42,299
	12 mos.	55	.....	.....	6,132,421	463,404	378,842	37,290	2,558,998	177.825	3,643,538	59.4	2,488,883	1,507,947	2,313,182	1,196,822
Texas & Pacific	Dec.	1,950	1,374,273	180.376	1,782,170	151,962	243,307	66,735	528,467	100,885	1,107,375	62.1	674,795	594,550	585,540	507,848
	12 mos.	1,950	16,208,919	1,718,193	20,229,967	1,999,463	3,528,753	745,119	6,168,945	1,236,302	13,858,988	68.5	6,370,979	5,166,974	3,942,553	3,871,848
Texas Mexican	Dec.	162	48,880	464	54,765	8,342	11,550	2,585	23,719	6,625	52,220	95.4	2,545	331	—2,570	8,594
	12 mos.	162	562,624	7,552	634,484	112,585	150,546	34,514	287,354	79,664	661,647	104.3	—27,163	—79,706	—116,150	—67,216
Toledo, Peoria & Western	Dec.	239	125,759	9	127,738	33,669	9,678	15,468	42,391	10,862	112,068	87.7	15,670	16,434	1,919	—8,947
	12 mos.	239	1,665,167	241	1,690,429	417,275	130,036	170,399	444,216	98,254	1,260,180	74.5	430,249	376,659	221,676	84,406
Toledo Terminal	Dec.	28	.....	.....	51,586	7,333	9,599	422	28,798	3,798	49,950	96.8	1,636	—1,380	8,574	7,743
	12 mos.	28	.....	.....	714,227	50,769	96,122	5,067	308,135	48,069	508,161	71.1	206,066	119,314	284,790	170,837
Union R. R. of Penna.	Dec.	45	.....	.....	252,319	60,653	113,583	140	123,605	13,271	311,252	123.4	—58,933	—65,690	—42,144	—158,181
	12 mos.	44	.....	.....	3,690,135	611,300	1,181,928	1,562	1,380,340	165,769	3,340,899	90.5	349,236	253,375	591,168	—905,852
Union Pacific	Dec.	3,767	4,336,940	387,809	5,234,696	292,327	1,303,517	104,928	1,600,931	273,069	3,633.255	69.4	1,601,441	1,715.179	1,487,046	1,323,228
	12 mos.	3,767	52,470,682	5,378,121	63,357,225	4,563,927	12,797,522	1,239,272	18,427,689	3,176,582	40,910,829	64.6	22,446,396	17,202,532	14,246,901	15,012,306
Oregon Short Line	Dec.	2,504	1,522,223	100,140	1,746,358	126.341	373,564	28,301	613,519	89,024	1,244,918	71.3	501,440	368,579	280,827	206,396
	12 mos.	2,504	17,709,942	1,294,382	20,466,813	2,029,670	2,995,927	352,202	6,685,308	1,064,805	13,387,530	65.4	7,079,283	4,371,596	3,301,980	2,699,868
Oregon-Wash. R. R. & Nav. Co.	Dec.	2,295	923,640	104,510	1,155,473	210,155	221,090	43,247	494,574	83,872	1,058,250	91.6	97,223	15,773	—47,827	—108,866
	12 mos.	2,303	10,756,019	1,070,221	13,331,086	1,962,042	1,901,481	545,139	5,428,306	989,937	10,888,508	81.7	2,442,578	827,210	—392,843	—1,370,302
Los Angeles & Salt Lake	Dec.	1,241	936,273	106,974	1,157,872	107,291	218,768	39,815	382,875	55,224	828,776	71.6	329,096	209,136	89,818	70,707
	12 mos.	1,247	11,402,726	1,401,914	13,935,335	1,591,243	2,091,313	490,312	4,277,091	674,434	9,425,801	67.6	4,509,534	3,020,134	1,591,090	1,670,666
St. Joseph & Grand Island	Dec.	258	202,647	2,671	212,611	19,669	23,703	2,061	62.460	12,235	120,303	56.6	92,308	89,737	62,066	34,718
	12 mos.	258	2,531,967	32,527	2,655,409	269,318	312,795	25,847	777,043	139,812	1,527,110	57.5	1,128,299	941,430	621,493	374,692
Utah	Dec.	111	100,078	.....	100,278	10,717	30,480	485	19,757	2,852	64,291	64.1	35,987	16,514	10,718	80,228
	12 mos.	111	974,889	.....	979,168	124,235	288,576	5,853	215,395	54,008	687,733	70.2	291,435	177,384	61,314	172,346
Virginian	Dec.	619	1,101,579	6,766	1,146,367	80,540	186.312	18,893	223,652	30,193	539,490	47.1	606,877	506,877	589,448	622,903
	12 mos.	614	12,850,345	61,161	13,433,773	1,160,812	2,394,720	194,190	2,446,811	333,049	6,520,505	48.5	6,913,268	5,292,483	6,116,664	5,196,092
Wabash	Dec.	2,457	2,493,807	197,818	2,901,622	96,008	488,990	126,743	1,178,475	117,681	1,995,420	68.8	906,202	876,868	512.012	344,604
	12 mos.	2,471	31,691,926	2,024,414	36,207,016	4,360,051	6,148,120	1,549,758	13,977,602	1,469,283	27,577,369	76.2	8,629,647	6,803,658	2,745,490	524,669
Ann Arbor	Dec.	293	223,394	3,583	235,184	20,714	44,866	10,039	110,692	10,517	196,501	83.6	38,683	26,763	11,137	—12,578
	12 mos.	293	2,842,082	33,925	2,985,896	312,686	547,425	125.717	1,279,090	115,810	2,381,686	79.8	604,210	438,935	220,246	31,755
Western Maryland	Dec.	891	1,047,656	7,890	1,085,736	100,220	208,531	32,045	284,101	35,441	659,371	60.7	426,365	387,221	403.772	379,189
	12 mos.	891	11,901,802	90,088	12,345,048	1,583.674	2,301,643	381,166	3,119,418	429,978	7,845,337	63.6	4,499,711	3,760,567	4,060,202	3,714,864
Western Pacific	Dec.	1,215	795,522	15,521	857,230	112,298	119,746	52,809	334,540	36.378	681,768	79.5	175,462	121,911	93,110	—71,984
	12 mos.	1,212	10,011,782	279,937	10,868,312	1,658,774	1,895,710	650,962	3,901,746	419,024	8,818,306	81.1	2,050,006	1,198,111	905,827	518,117
Wheeling & Lake Erie	Dec.	511	686,735	2,520	742,227	70,799	323,172	26,972	243,220	35,142	698,910	94.2	43,317	67,286	61,322	232,504
	12 mos.	511	9,877,933	19,152	10,563,820	1.096,572	3,045.665	317,850	3,028,851	307,230	7,794,603	73.8	2,769,217	1,801,649	1,651,357	903,170
Wichita Falls & Southern	Dec.	203	43,647	52	45,317	6,923	6,010	1,643	12,841	2,914	29,595	65.31	15,722	17,646	15,581	29,985
	12 mos.	203	537,287	445	558,878	102,309	81,718	19,836	149,331	41,521	393,979	70.49	164,899	135,602	100,487	102,764